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General Articles

THE DISEASES OF CAGE AND AVIARY BIRDS, WITH SOME REFERENCE TO THOSE OF FURRED AND FEATHERED GAME*

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Birds, like all other animal or vegetable species, whether wild, domesticated, confined or cultivated, are subject to the natural laws that govern health, disease or propagation. In continuous hot or cold but settled weather, disease is less prevalent than when sudden changes take place in the temperature, or in the humidity of the air or of the soil. Common-bred animals or plants are less susceptible to the effects of these changes than are the highly inbred, highly fed and confined species.

Plants or their seeds gathered in wet seasons are more liable to alter in chemical composition or nutritional value, and this reacts on animals consuming them. The majority of such diseases of plants as are injurious to animals are produced by moulds or fungi, which are in many instances poisonous. Improper storing of foods, especially grain or seeds, often gives rise to the development on them of fungi or moulds and these, when ingested, set up disease in animals either by the growth of such moulds in the living tissues or by the action of their poisonous properties on the whole system. Foods of animal origin often undergo chemical changes due to the presence of putrefactive or other micro-organisms or of moulds. Among such substances commonly used for cage bird or pheasant food are hard-boiled egg, egg-flake (the by-product of calico printing), meat meal, fish meal, ground locust and other insects and their products such as ant-cocoons, silk-worm pupæ and maggots.

Eggs derived from fowls carrying disease micro-organisms such as *Salmonella pullora*, *Pasteurella aviseptica*, *S. paratyphosum* type B, unless efficiently sterilised by prolonged boiling, may transmit these diseases to birds and some other animals fed upon them. *Salmonella ærtrycke* and *Salmonella enteritidis*, etc., are sometimes found in eggs, especially in ducks' eggs and like many other toxic or injurious properties of unsound food products, are not destroyed by roasting and boiling.

An ill-balanced ration, as too much carbohydrate in proportion to protein or *vice versa*, is liable to induce disease, especially in young birds and other small animals. An excessive quantity of oily material is particularly injurious, if given over a long period. A variety of living foods such as seeds, grain or green vegetable matter, given together, is less liable to give rise to nutritional disturbance, because the instinct of the bird leads it to select foods that are beneficial to it. Freshly collected ant-cocoons, flies, worms and other small-animal species suitable for foods are better than stale specimens or those that have been dead a long time. Most birds at liberty subsist largely on live food, whether of vegetable or of animal origin.

Maggots derived from the carcases of diseased birds should not be used, thereby avoiding risks of contracting the disease, such as coccidiosis, infectious necrosis or tuberculosis. Pheasants or partridges should not be given maggots just removed from dead carcases until they have been put in sawdust to clean themselves of putrid matter or micro-organisms. Otherwise death from botulism is likely to arise from their consumption when in an unfit state.

Damp, chilly, sunless weather has a depressing effect on birds and therefore renders them more susceptible to disease-producing micro-organisms. Anything that lowers the vitality of the system, such as depressing, chilly weather, draughts—especially when the wind is in the north or north-east—innutritious or damaged food products, the excitement at the commencement of or during the breeding season, fright or prolonged fear—especially at night—the moulting process, parasites, sudden changes of diet, and unhygienic surroundings will assist in producing in the subject a more susceptible state for the invasion of bacteria, which might otherwise be comparatively harmless.

If a bird's system is not maintained in a *healthy* state of functional *efficiency*, disease will sooner or later make its appearance. Birds in captivity require suitable shelter, especially after sunset or during wet and chilly weather. The shelter should not have too much covering with glass; *e.g.*, conservatories, which reflect

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too closely the variations of the external temperature. The provision of thatched roofs and asbestos walls is the best means of obviating such variations inside the building. Nor should caged birds be exposed to the draughts caused by open doors and windows and a good fire. Above all, they should have the chance of receiving sunlight direct and not indirectly through the glass of a window, especially in very hot or cold weather. The floor of the cage or aviary should be kept as clean as possible by scraping or washing and disinfecting. The floor of the cage may be sprinkled with pine sawdust, peat dust, fine sterilised sand, finely sifted ashes of cinders or covered with newspaper, brown paper or blotting paper which can readily be removed when it becomes unduly soiled with fæces and husks of seed or waste of other products. No class of animal in a state of Nature leads a more sanitary, cleanly life than cage and aviary birds. They breathe in pure, unvitiated air—air constantly exposed to the direct rays of the sun—subsist chiefly on living food, and rarely feed on ground soiled with their own fæces. They require a sand or water bath and grit or sand, according to their nature. It is not absolutely necessary to give grit or sand to birds that husk or shell their seed or food before they ingest it. Numerous fanciers never give birds of the finch tribe, such as the canary, grit or sand, merely using sawdust as a covering to the floor of the cage. It is different with the gallinaceous birds that swallow their grain whole; they require grit or gravel with which to mill the food when in the gizzard.

Highly infectious diseases are generally introduced by birds coming from an infected bird store, bird room or aviary, or by exhibition specimens returning from a show. Many so-called fanciers when they have a dangerous disease in their stock rapidly dispose of the apparently sound birds to the bird dealer, who, in his turn, disposes of them to his various customers, who introduce the malady into their bird rooms or aviaries. The same despicable practice takes place with most of the other small animals.

Cages or aviaries in which diseased birds have been kept are often the means of transmitting disease to healthy birds put into them. It is therefore obvious that purchasers of second-hand cages or aviaries should be chary of using them until they have been thoroughly cleansed and disinfected. Some birds which have recovered or have been exposed to infection and have been isolated for a period varying from one to six months may remain "carriers" even if they have all the appearances of good health. Not infrequently, after a prolonged isolation, they eventually develop the malady and generally succumb to it. Such birds often escape suspicion until they have paired up for the breeding season, or the moulting period has come round and they are crowded together with others. Bird owners who rarely introduce fresh stock to their bird rooms or aviaries generally escape devastating diseases. All freshly acquired birds should be quarantined for at least a month in a separate, clean and disinfected cage before being introduced into a bird room or aviary with other birds.

Some decimating diseases are only transmitted from bird to bird by the agency of insect life, such as flies, gnats, bugs, beetles, wood-lice, ticks, bird-lice, fleas and mites. These may act as vectors, only sucking the blood of an infected or infested bird and then transmitting the disease-producing agent by biting a susceptible bird and thus inoculating it or, in other instances, they may serve as intermediate hosts in which the disease-producing agent undergoes some essential development.

Small birds at liberty, rats and mice, flies, beetles, as well as other small-animal life, may introduce or spread disease by their soiled feet to a clean aviary or bird room. The same may be said of people who enter a clean aviary after having soiled their shoes and hands in disease-contaminated premises. Food coming from an infected bird store also is a possible source of danger.

Disinfection and Disinfestation

To carry out disinfection efficiently all *débris* should be removed, first by scraping and sweeping, then by washing, scrubbing and rinsing. Boiling water containing 2 per cent. of commercial caustic soda will assist in removing the adhering dirt and destroying most of the micro-organisms or viruses of putrefaction or disease, but its efficiency as a germicide or steriliser is enhanced by adding 2 per cent. of formalin. It should be applied vigorously with a stiff brush. Sprinkling or spraying a cage or aviary or the air with a strong-smelling so-called disinfecting agent gives no guarantee of success, for even though the agent may be a reliable one, it would not cover every part of the surface necessary for it to act upon. Evolving sulphur or chlorine gas or vaporising formalin or pine oil in a practically air-tight room and keeping it closed from twelve to 24 hours may destroy moulds, mites, fleas, bugs, lice, ticks and other minute animal and vegetable life, but will not destroy insect or parasite eggs, coccidia, spores and some other forms. A strong solution of formalin will not kill the maggot of the fly even when the former has just been dipped into it. The powerful penetrating flame of the blow-lamp is very efficacious in destroying eggs, spores, viruses, micro-organisms and oöcysts, if properly used.

Superheated steam and the direct rays of the

sun have a powerful disinfecting action. Metal cages or trays can be sterilised in an oven by leaving them there for a short period without melting their solder unions, or they may be boiled for a few minutes. Practically all methods of sterilisation are detrimental to the paint, varnish or enamel coatings on cages, but this cannot be avoided. Cleanliness as far as disinfection is concerned should be microscopic or even ultramicroscopic rather than merely pleasing to the naked eye. It should be remembered that although the surroundings might be rendered sterile, there is no known method of sterilising the living animal.

Freshly acquired birds, especially those coming from shops, large aviaries or arriving in foul cages from abroad, should be quarantined for at least a month in separate, clean and disinfected or sterile cages and if during that period they should not show any sign of diarrhœa or ill-health, they may be considered fit to be placed with other birds. In the case of an outbreak of a contagious disease in an aviary or large cage, the birds showing signs of illness should be caught and, if thought advisable, as would be the case if affected by infectious necrosis, paratyphoid or tuberculosis, painlessly destroyed and their remains burned.

The remaining birds should be isolated in separate, cleansed and disinfected cages and in widely separated rooms or places. The aviary, cages and equipment should be thoroughly cleansed and disinfected. Cages of no special value should be burned.

Mice and insects should be eradicated to prevent them conveying disease from cage to cage or aviary to aviary. Care should be taken not to convey the disease from cage to cage by means of the scraper or brush used in cleansing the cages or by soiled hands, utensils or food. Second-hand cages should be looked upon as dangerous until they have been sterilised.

Contagious Diseases

The diseases most dangerous to cage and aviary bird life are the malignant contagious affections, for once they gain admission they are likely to spread to a large number of birds before the danger is recognised.

Infectious Necrosis of the Liver and Spleen

This is commonly known among fanciers as "bird-fever" and to scientists as paracholera and pseudo-tuberculosis. It is the most deadly malady that can invade a bird room, generally destroying most, if not all of the inmates. Although chiefly seen in canaries, it is no respecter of species. It is just as deadly to fruit-eating, insectivorous or carnivorous as to seed and vegetable-eating species. The disease is not transmissible to the pigeon, as Sir John M'Fadyean found out over a quarter-of-a-century ago, but it is to the rabbit, guinea-pig and poultry. It is due to *Bacillus pseudotuberculosis rodentium*, or, according to Dor, *Streptococcus pseudotuberculosis canariensis vel rodentium*, which belongs to the fowl-cholera or pasteurella group of micro-organisms. It is also the cause of pseudo-tuberculosis in the rabbit, poultry, guinea-pig and other species.

The organism invades the liver and spleen, causing them to become very much enlarged and studded all over with yellow nodules, which often run into one another and give the organs a swollen, spotted appearance, which in the case of the spleen resembles somewhat that of brawn. These foci, as pointed out long ago by Sir John M'Fadyean, contain almost, if not entirely, pure cultures of the infectious element resembling that of fowl-cholera. The period of incubation is from three to five days. It runs a rapid course, death usually taking place within a week of the date of infection. There may or may not be diarrhœa. The bird refuses food, appears uncomfortable and dull, seeks the bottom of the cage, and not infrequently hides its head in the feathers covering its shoulder. Death takes place either from heart failure or during convulsions. The bird rarely lives long enough to waste away. The lesions in the liver and especially in the spleen are characteristic. The swollen liver usually extends posteriorly beyond the breast.

As soon as this disease is discovered all birds showing signs of ill-health should be destroyed and their carcases burned. Those that appear in good health should be isolated in separate, clean and disinfected cages scattered about in different rooms, care being taken that the disease is not conveyed from cage to cage by means of the scraper, soiled hands, food and water utensils, food, etc. Mice and other vermin should be destroyed to prevent their spreading the disease. Cages in which diseased birds have been housed should, if not especially valuable, be burned, or if kept they should be thoroughly cleansed and disinfected. Egg, egg flake or biscuit meal or other prepared food containing egg flake should be stopped. The disease is usually introduced into the system by food or water soiled by the faeces of infected birds and especially when the birds are fed on soft food such as egg, fruit, flies, maggots and ant-cocoons.

Paratyphoid Disease

Bird fanciers generally call this disease "septic fever." It is also known as typhoid or contagious enteritis. Next to infectious necrosis of the liver and spleen it is one of the most dreaded diseases attacking every species, especially the canary and other small cage-bird varieties. It occasions very great losses among

budgerigars and other birds of the parrot tribe, pigeons, doves, etc. It is due to a bacillus belonging to the paratyphoid group of micro-organisms. Probably it is closely related to, if not identical with, *Salmonella pullora* and *S. sanguinaria*. Besides being conveyed by food and water soiled with the fæces of birds affected with the disease, or through the medium of infected cages, it is generally considered to be introduced in the first instance by foods made from eggs, or infected fowls, which have not been sufficiently sterilised by boiling or drying. Egg flake, the by-product of calico printing and used in the preparation of a biscuit food for the feeding of young birds, which has been insufficiently sterilised or kept too long a time after being so prepared, is a frequent means of introduction of this disease into a bird room or aviary. Dirty utensils used in the preparation of an egg food for young pheasants account for serious losses in this species.

Besides dullness, open feathers, and a capricious appetite, there is seen a more or less profuse diarrhœa which soils the feathers in the vicinity of the vent. The feathers in this region are often caked toegther with a greenish-white or yellow chalky fæces, which often, by friction, cause soreness of the vent region. In parrots there is often vomiting, great thirst and a bloody diarrhœa. Frequently the bird breathes rather rapidly and depression is sometimes great. Death in many instances occurs very suddenly or during convulsions.

Post-mortem examination shows catarrhal and often peracute enteritis, an enlarged purple spleen, and an enlarged softened liver which sometimes exhibits hæmorrhages in its substance. There is generally more or less extensive congestive pneumonia. Not infrequently in acute cases there are one or more hæmorrhagic spots or patches between the bony plates covering the brain.

The period of incubation is from three to seven days and when symptoms manifest themselves death supervenes within a period ranging from only a few hours to as long as two or three weeks. Sometimes death occurs without any symptoms having been observed. During the longer illness the victims become emaciated.

As the disease is transmitted in a manner similar to infectious necrosis, it should be dealt with as recommended in the case of that malady.

Where only a single pet bird is affected and there are no others to run the risk of contracting the infection, one may be justified in treating it with syrup of dianimol or syrup of beta naphthol* in two or three drop doses three times daily. A larger dose is required for parrots. Kaolin (china clay) mixed with the drinking water or milk to which may be added Brand's essence of beef or Oxo may be tried.

In aviaries where other birds would be exposed those affected should be destroyed and their cage either burned or thoroughly cleansed and disinfected, preferably with a 2 per cent. boiling solution of commercial caustic soda.

* B-naphthol syrup is prepared as follows:—

B-naphthol	60 grains.
Ether	1 fluid drachm.
Glycerin	3 fluid drachms.

Simple syrup to make three ounces.

Bird Septicæmia

This is an infectious disease that destroys a great number of the usual cage birds, and is due to a bacillus which belongs to the colon group of micro-organisms. The bacillus is pathogenic for the mouse, sparrow and most of the small cage birds, either by feeding or inoculation. Poultry, pigeons, rabbits and guinea-pigs are immune. The period of incubation is two to four days and death generally takes place two or three days after the manifestation of the first symptoms. An affected bird becomes less lively than usual and has ruffled or open feathers. It is inclined to rest on the perch most of the time, uttering occasionally a squeaky noise as if complaining. Its breathing increases in frequency and although its appetite does not seem diminished, its thirst is somewhat greater than usual. In some instances there may be a slight diarrhœa. When approached the bird appears to become brighter, hopping from perch to perch and often twittering and having the temporary appearance of normal health. As time goes on and the disease progresses the feathers become more and more opened or blown out and the little creature sits immovably on the perch or in one corner of the bottom of the cage with a sleepy appearance, when its head is not hidden in the feathers of its shoulder. Death not infrequently takes place during convulsive movements or when handled. In many instances the bird rouses itself and goes to the seed pot and appears to eat, but usually wastes the food just before death.

On *post-mortem* examination the intestine has a swollen and congested appearance. The liver is enlarged, appears congested or is yellowish in colour and is very soft and friable. The spleen is rarely congested, enlarged or discoloured.

Control of this disease requires that it be dealt with similarly to infectious necrosis and paratyphoid.

Streptococcal Fever

This is due to a special streptococcus which it is believed may be transmitted from bird to bird by the red mite (*Dermanyssus gallinæ*). It invades the circulation, liver, lungs, spleen and other organs and sets up more or less fibrinous inflammation with minute yellowish points or larger patches on the affected parts.

Often the spleen is swollen and there is at times a sero-fibrinous exudate in the pleural and peritoneal cavities. The liver is generally much enlarged and congested. The disease may be conveyed to mice as well as to canaries and other cage birds.

The affected birds become dull and sleepy and sit on the perch or at the bottom of the cage. There is diarrhœa, the material of which soils the feathers in the region of the vent and cakes them together. The breathing is of the panting description, the tail and wings being dropped at each inspiration and raised during the expiratory effort in a pumping manner. The beak opens and shuts as the bird gapes for air and there may be a squeaky, wheezing, jumpy or thumping noise, sometimes more plainly heard when other birds go near.

The malady usually runs its course within three to seven days. Curative treatment being of no avail, the disease should be prevented by hygienic means and the destruction of the red mites and mice.

Anæmic Fever

This disease, generally termed by fanciers "going light," often attacks and destroys many birds in a bird room.

The affected birds become pallid, weak and very light and die within three days to a week. On *post-mortem* examination the whole body, including muscles, fat and viscera, has a bloodless appearance and exhibits pronounced pallor.

In many instances this condition appears to be due to a vast number of red mites swarming on the victims at night and feeding upon the large amount of blood which they extract through the skin. Some authorities believe that certain obscure infections are also responsible. Spirochætosis in canaries also has a similar anæmic effect. The disease usually runs its course in three or four days, generally ending in death. Citrate of iron and quinine given in the drinking water may be tried.

Infectious Pneumonia

This disease often destroys, within twelve to 24 hours, numerous valuable canaries during the breeding season. Sometimes it has a preference for the hens or the cocks, but not rarely it attacks both sexes at the same time. It generally destroys life in a very few hours, even when the hen is on the nest, although nothing was previously noticed amiss with the bird. Frequently a hen may feed her youngsters in the morning without showing any signs of illness but in the afternoon she will be observed to be dull, breathing deeply and be dead at night-time. On *post-mortem* examination the greater portion of both lungs is found of a deep black colour and sometimes consolidated or congested.

This affection is thought to be an acute form of aspergillosis. A drop or two of camphor oil with ether may be given by the mouth every morning, noon and night, should the victim resist the disease so long. Exposure to violet rays and oxygen might be tried. Disinfection of the cage and utensils should be carried out and the food changed.

Aspergillosis

This malady, due to the mould or fungus *Aspergillus fumigatus*, attacks every species of bird and is more frequent in them than animals of other classes. The fungus invades the throat, wind-pipe, bronchial tubes, air sacs and even the canals of the long bones, forming matted or felted masses of a greenish or yellowish false membrane on their mucous surfaces. The lesions, especially in the lungs, liver and other organs or tissues with free surfaces, may appear in the form of more or less caseous, small yellowish or whitish nodules. These lesions give rise to difficulty in breathing, wheeziness and cough. Slight lesions often give rise to symptoms indicating pneumonia or the so-called "asthma." When the fungus invades the long bones it sometimes produces joint-ill. Birds affected with this disease in a slight form are usually unthrifty, dull and weak and often die in a state of marasmus. When the lesions are extensive and invade the lungs and air sacs death may take place within one to four weeks or sometimes a little later. It occurs more often in canaries than in other cage birds, perhaps for the reason that more people keep them. The green cardinal bred in confinement is particularly liable to it. It is rare in budgerigars.

Direct sunlight, exposure to fresh air or violet rays, inhalations of oxygen, sound seed free from mouldiness, fresh insect life and green vegetables are not only preventives but also curatives. Iodide of potassium, Lugol's solution of iodine or solution of calcium iodinate in the drinking water has a deleterious effect on the mould in the system. Steaming with boiling water containing compound tincture of benzoin or oil of eucalyptus or exposure to the vapours of the cresolene lamp should be tried. The cage should be thoroughly cleansed and disinfected from time to time. The food and water utensils should not be overlooked as a source of infection.

Tuberculosis

No species is exempt from this universal plague. It occurs in wild pheasants, hawks, crows, etc., in a state of freedom. In the wild pheasant it runs a much longer course than it does in the confined ornamental species in which it frequently appears. In the former, the lesions have distinct histological characters. The disease frequently attacks the parrot family,

especially the larger species, but it is rare in budgerigars and in the passerine birds such as the canary and the usual cage birds. This is no doubt due to the difference in man's relationship with the latter. These he rarely kisses, nor does he chew food and give it to them or give them raw cow's milk as he so often does in the case of the parrot tribe. It is not because the small birds are immune to the disease; they are very susceptible to experimental infection.

The disease may be transmitted by contact or by an infected cage. No doubt in the wild and in the confined ornamental species of pheasant it is contracted from poultry.

In its acute form tuberculosis usually becomes generalised, forming more or less large tubercles in the liver, spleen, kidney and bowel, but rarely in the lung. In the chronic form cheesy lumps may appear on the tongue, pharynx and roof of the mouth, especially near the nasal slit, at the angles of the mandibles, on the eyelids, on the point of the humero-ulno-radial joint of the shoulder, the digital region of the wing, the tarsal, metatarsal and digital joints and other parts. Not rarely warty growths or "horns" appear on the eyelids, on top of the head and on the skin covering the throat or other localities.

There may be more or less rapid wasting, difficulty in feeding, cough, diarrhœa or dysentery. In some of the more chronic cases there may not appear to be much general disturbance of the bird for some time.

The parrot is subject to the human, bovine and avian varieties of tuberculosis, thus differing from most other avian species, which are more prone to the avian form. Many affected parrots belong to or are attended by tuberculous persons. The flesh of the breast of a parrot dead of the disease, when given to a hawk or other carnivorous bird, often transmits the disease, which generally runs a rapid course involving mainly the liver.

The disease is the bane of large aviaries. Raw cow's milk should not be given to parrots. As these creatures, when affected with the human type, are dangerous to human beings, they should be destroyed. Treatment should not be recommended or attempted in cases of tuberculosis.

Streptothricosis

This disease, due to a mould, *Nocardia dassonvillei*, is often mistaken for visceral gout. It occurs in toucans and budgerigars as well as other birds, including poultry. There is a loss of appetite, dullness, general emaciation and infrequent evacuation of fæces. This last symptom is no doubt due to the lessened intake of food. The mucous membranes become pallid and the feathers lustreless and open or bedraggled. It is only discovered on *post-mortem* examination, when the heart, pericardium, surface of the lungs and interior of the chest wall, the liver capsule, and sometimes the peritoneum and other organs are found covered, sometimes lightly or at times adherently, with a layer of more or less thick greyish or yellowish membrane or deposit, which at times may easily be brushed off the serous surface of the organ on which it is deposited.

Iodide of potassium, Lugol's solution or solution of calcium iodinate should be given in the drinking water and fresh green or other living food allowed. The cage or aviary should be disinfected.

Variola or Bird Pox

Variola is a contagious disease due to a filtrable virus and attacks all animal species. The virus differs in quality according to the species it attacks and becomes habituated to the special animal soil, just in the same manner as tuberculosis and some other contagious or transmissible entities.

The farmer knows that seeds, corn or tubers from a certain soil are not likely to do well on a soil quite different from the other; or that animals raised on one soil or locality will thrive on another or *vice versa*. Heredity, habituation and nutrition play a great part in immunity or susceptibility—as much in pathogenesis as they do in agriculture or horticulture. There is no doubt that under certain conditions the virus of one species can be made to develop on another species, just as human variola can with some difficulty be reproduced in cattle and in equines, or fowl-pox on pigeons and canaries or other birds, rabbits, etc. Toyada at the Koch Institute, Berlin, reproduced typical pox eruption by passing fowl-pox virus through the rabbit and guinea-pig, from the rabbit to the calf and from the calf to man. De Jongh passed equine stomatitis pustulosa to the cow and found that the pox thus obtained produced a pox eruption on the children resembling that of cow-pox. Sheep-pox virus immunised the fowl and, passed from the fowl to the rabbit, from the rabbit to the calf and from calf to child, produced, in the last, a typical vaccinia eruption.

In some ancient works on falconry, avian pox is described as small-pox of the bird and modern research has apparently confirmed this view.

Avian pox not only attacks poultry, pheasants and other gallinaceous birds, but also pigeons, wood pigeons and other species of the Columbæ. It is sometimes seen in canaries and other cage birds and in budgerigars. It often destroys many young birds such as the pheasant, before many of them have had time to manifest the characteristic lesions such as the diphtheritic

membranes in the mouth and throat or warty growths at the root of the neck, round the eyelids or nostrils. In many young birds such as pigeons, doves, canaries and others, warty growths appear on the legs, and in the pigeon tribe also on the beak. Occasionally the victims, especially during hot weather, develop scattered eruptions all over the surface of the body.

It is quite possible that wild birds spread the infection to birds confined in large outdoor aviaries.

With careful treatment many of the birds recover and the warty eruptions disappear. Lahaye of Brussels has found that the exudate removed from the semi-circular canals of the ear of pigeons suffering from torticollis or the so-called "megrims" of pigeon fanciers, can, when rubbed up with saline solution and inoculated into pigeons, reproduce pigeon-pox, thus showing that the virus collecting in the ears is the cause of torticollis.

Avian Plague

This is due to a filtrable virus and attacks various species of bird, destroying in a very short time vast numbers without their showing well-marked lesions. There is no doubt that in most cases the virus is specific for the species, but what virus relationship exists as between the different species is not known. The same may be said of the different form in which the disease may occur in one species, as the domestic fowl, as compared with that it may take in the other avian species. The disease occurs in blackbirds, thrushes and other smaller birds. It is a disease that requires scientific investigation, and the Italian investigators have done much work in this direction.

During the past few months various species of wild birds dead of some obscure malady have been picked up in gardens and plantations in the west, south-west and south and other parts of England. Some show no definite lesions, whilst some others have pneumonia or enteritis or both.

Psittacosis

This is an extremely fatal disease of the parrot family and is due to a filtrable virus. It usually originates in the South American or Brazilian species and when the affected birds are distributed to other countries the disease is spread to other species; thus it follows the trade routes and gains an entrance into dealers' establishments. Its importance lies in its transmission to man, often occasioning a serious mortality. In Buenos Ayres a few years ago the malady spread to over 600 people, and even in this country, during the great scare of a few years ago, owners of parrots became so alarmed that they disposed of their birds for fear of contracting the disease. Even in cases in which there was involved only a single bird which had been in the owner's possession for two or three score years, without having been in contact during those periods before falling ill of an ordinary complaint, the sick bird was destroyed. In some cases the owner shut up the room even after the bird had died.

Psittacosis is not a new disease, but was first described by a Swiss physician in 1879. Clinically it is difficult to differentiate this disease from catarrhal fever or gastro-enteric catarrh occasioned by chills due to exposure to draughts during wet chilly weather. It is generally fatal, but those that may recover are likely to remain "carriers" and thus be the means of spreading the disease to other birds and to human beings. An embargo has been placed on parrots coming from countries where the disease is in evidence.

Coccidiosis

This may be termed the universal protozoan disease, for it attacks every species, at least of the vertebrata. It is frequently observed in canaries, linnets, goldfinches and other cage and aviary birds, and has been encountered in sparrows, the jay, shrike and other wild birds. Coccidiosis is due to the coccidium *Isospora lacazii* and other species, which have no relationship with *Eimeria tenella*, which so often destroys chickens, young pheasants and partridges and other gallinaceous birds. It usually runs a rapid course, often killing birds suddenly, frequently during an attack of convulsions. When not quite so acute there may be dullness, ruffled or open feathers, very little or no appetite, restlessness or irritability, dysentery or diarrhœa followed by emaciation and death. The disease can readily be diagnosed by microscopical examination of the fæces, intestinal contents or scrapings from the intestinal mucous membrane, when numerous rounded coccidia can readily be seen. Occasionally in the canary the elliptical or oval coccidium *Eimeria tenella* is observed. On *post-mortem* examination the bowel wall, especially that of the duodenum, is not infrequently seen to be thickened, rigid and soft, or it may be the seat of acute or hæmorrhagic enteritis. The thickened mucous membrane is mainly composed of coccidia in various stages of development.

When the malady is diagnosed, tincture of catechu, tincture of kino or citrate of iron and quinine may be given in the drinking water or preferably in milk.

A drop or two of syrup of dimol or syrup of iodide of iron may be given by the mouth. The cage should be thoroughly cleansed and

disinfected with boiling soap suds or boiling water containing 2 per cent. solution of commercial caustic soda. One of the best destructors of the oöcysts or mature parasites outside the body is the plumber's blow-lamp.

Young pheasants are as frequently attacked with coccidiosis as are young chickens, but in them the cæcal contents contain almost pure cultures of the oöcysts which distend the bowel wall and give it a somewhat knotted appearance, while there is never any cæcal hæmorrhage. The disease is generally more prevalent under conditions of drought.

The rabbit has three forms of coccidiosis—the intestinal, due to the presence of *Eimeria perforans* and *Eimeria magna* N. sp. Pérard in the walls of the bowel, and the liver form caused by *Eimeria stiedæ*. The first accounts for 85 to 95 per cent. of the mortality. The last is comparatively rare. The former may destroy life at three weeks, rarely after six months.

Great mortality sometimes takes place among young hares on some estates, especially in the later summer and earlier autumn months, due to coccidiosis caused by *Eimeria leporis*, a new species discovered by Dr. Otto Nieschulz in 1922. Young hares almost full-grown are found dead scattered all over the estate. It attacks the small intestine, which becomes thickened and somewhat rigid. The swollen mucous membrane is composed mostly of coccidia in various stages of evolution. The lumen of the large intestine contains innumerable oöcysts which appear somewhat crescentic and narrow. The coccidium *Eimeria leporis* differs so much in outline that it should not be confounded with the *Eimeria* of the rabbit.

Histomoniasis

This disease is generally but improperly termed "black-head," entero-hepatitis, infectious typhlitis, etc., and attacks every species of the Gallinaceæ and Columbæ when in a wild or domesticated state or during confinement. Although observed more frequently in the turkey, it attacks the various species of ornamental pheasant, quail and partridge, and species of the pigeon family. It is not rare in the peachick. Although not often encountered in the wild pheasant, it commonly occurs in the wild partridge. Apparently it is somewhat rare in the domestic chicken; at least, that is my experience. In the turkey it is due to a protozoan *Histomonas meleagridis*; in the pigeon to *Histomonas columbæ* and perhaps, in some of the other Gallinaceæ, to other species. In the turkey the disease is often associated with various species of nematode worms, especially *Heterakis vesicularis*, in the cæca; but they are as often absent as present. In the pigeon, the cæca are mere nipples and therefore are very rarely the habitat of parasitic worms or the seat of lesions in this malady.

In those species with well-developed cæca these appendages generally become involved in a chronic inflammation with thickening and distension of the walls, which may be accompanied by a localised peritonitis. The mucous surface is thickened with a dirty yellowish adherent membrane, in which there are often small pockets containing small parasitic worms. Sometimes only one cæcum is involved in the pathological process; in many instances both appendages remain normal. The lesions in the liver are characteristic. In their earlier stage they appear as more or less well-defined ovular or circular bronze or greenish necrotic patches; these, however, soon run into one another and coalesce into large yellowish patches of yellowish cheesy necrosis. This widespread necrosis of the liver substance is noticed more in the partridge than in other species. In the young peafowl the liver has often a golden or pale, anæmic jaundiced appearance and the other structures of the body also have this pale jaundiced tint.

The disease attacks birds of all ages from two or three weeks and the turkey even up to five or six years of age. In chickens the lesions are beautifully defined. In older birds the liver lesions may become very extensive in consequence of their having more resistance, so giving more time for their development. On the other hand, the longer the course of the malady the greater the emaciation becomes before death sets in. In the partridge the disease may occur where there has been no possibility of contact with turkeys.

To be successful, the method of breeding and rearing turkeys should be similar to that of keeping sheep. In other words, turkeys should be folded wide and not be brought up in the surroundings usually found in a farmyard where ordinary poultry are kept.

In the earlier stage of the malady synthetic drugs of the arseno-benzine series give good results. Such drugs are neosalvarsan, novarsenobenzol, myosalvarsan, tryparsamide and similar ones sold under various trade names. Some are introduced intravenously, others intramuscularly or subcutaneously, or even intraperitoneally.

Catarrh of the Upper Air Passages

This is sometimes witnessed in birds exposed to draughts, especially during wet and chilly weather, and kept in warm or hot rooms. The majority of such cases occur in delicate or weakly subjects or when the birds are suffering from a subacute or chronic attack of some weakening contagious disease. Similar symptoms may occur in psittacosis.

The malady is seen more often in the parrot

family than in the finch species, such as the canary.

There may be a thin watery discharge issuing from the eyelids and nostrils, with frequent sneezing. Later on the discharge becomes thicker and sticky and clings to the soiled parts, sometimes forming flakes or crusts. As the complaint progresses the nostrils become blocked with pellets of thick, dry, greenish discharge, and not infrequently there is a bulging below one or both eyes due to an accumulation of discharge into the naso-ocular or infra-orbital sinus. Sometimes this nasal catarrh is accompanied by tracheitis, bronchitis or pneumonia.

The bird should be kept in a warm draughtless place and be given a drop or two of compound syrup of camphor two or three times a day, and tincture of quinine in its drinking water. The eyes and nostrils should be mopped with a piece of cotton-wool dipped in a warm solution of boracic acid and then smeared over with boracic vaseline. In chronic cases a drop or two of oil of eucalyptus, 1 part in 10 to 15 parts of liquid paraffin, should be allowed to fall up the nostrils when the head is raised to favour the gravitation of the fluid, once or twice daily.

As to the accumulation of cheesy matter in the infra-orbital sinus, which may cause a bulging of the lower lid and perhaps increase to a size sufficient to hide the front of the eye, an incision into the tissues covering the swelling may have to be made and the contents removed.

Obstruction of the Nostrils

Occasionally the nostrils of parrots, such as the Amazons and the African grey parrot and sometimes of budgerigars and rarely of other species, become obstructed with dry, hard plugs of muco-purulent discharge resulting from chronic nasal catarrh. As time goes on the plugs increase in size, by the continual accumulation of the nasal catarrhal products, to such an extent that the creature is compelled to breathe through its mouth, and bring about distress almost to the degree of threatened suffocation. When these hard plugs are removed by a scoop, bodkin or probe after the surrounding nostril opening and contents have been anointed with a greasy or oily preparation, the nostrils are left widely dilated in consequence of the gradually increasing pressure of the plugs bringing about corresponding absorption of the surrounding tissues. After the removal of the plugs the dilated nasal channels should have instilled into them a few drops of the eucalyptus preparation mentioned above, during the time the head is elevated. This instillation should be practised once or twice daily until there is no likelihood of the trouble recurring.

Bronchitis

Catarrhal inflammation of the bronchial tubes may occur as a simple malady or in association with a "cold in the head" due to a chill. More frequently, however, it accompanies some infectious process, as infectious necrosis, paratyphoid, streptococcal infection or, in parrots, psittacosis and in the case of the larger birds, gapeworm infestation. It may also accompany aspergillosis and the diphtheritic form of avian pox and be associated or rather connected with air-sac disease.

The affected birds generally show wheezing, frequent coughing and sometimes distressed or quickened breathing.

The treatment is similar to that advised for nasal catarrh or "colds." Steaming with a bronchitis kettle containing besides the boiling water a teaspoonful of compound tincture of myrrh or oil of eucalyptus, or vaporising with a "cresolene" lamp may be tried from time to time in cases where there is a difficulty in breathing or gasping for breath. In very bad cases inhalations of oxygen may be given. Painting the skin covering the course of the wind-pipe with tincture of iodine or camphorated oil often gives relief.

Pneumonia

Inflammation of the lungs destroys a very large number of birds when exposed to draughts as from an open window or door in inclement or wet and chilly weather. It usually runs a rapid course and generally ends in death within 24 to 48 hours. Pneumonia is evidenced by quickened breathing with pumping-like movements of the abdomen and tail during the inspiratory and expiratory efforts. There is generally loss of appetite and a dull or anxious expression. Not infrequently it is associated with infectious diseases and may also occur as an enzoötic, killing many birds about the same time in a bird room or aviary (*vide* Infectious Pneumonia). Similar pumping-like respiratory movements are observed in enlargement of the liver, spleen or other organs or when large tumours appear in the abdominal cavity, compressing the lungs and circulatory system.

Pneumonia is caused either by chills or infections. Over-fed or fat birds are more prone to it than others. Not infrequently it arises during neglected cases of so-called "egg-binding."

It may be mistaken for tuberculosis, aspergillosis or other disease involving the lungs.

Treatment is similar to that for bronchitis. To obviate cardiac failure a few drops or more, according to the size of the bird, of the following mixture: camphor 1, ether 2, oil of aniseed a few drops, olive oil to make 16 parts, may

(*Continued at foot of col.* 1, *page* 352.)

ANAEROBES AND DISEASE IN THE DOMESTIC ANIMALS*

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The title of this paper was selected with the intention of embracing not only those more familiar anaerobic conditions encountered in sheep but also in an endeavour to discover how commonly other anaerobic infections occurred and were likely to be met with in the domestic animals. A perusal of the literature seems to indicate that the anaerobic organisms have already begun to play an ever-increasing part in the causation of disease and, as dicoveries are confirmed, so other workers tend to suspect or at least not to ignore such organisms when they are encountered in association with new or obscure diseases.

Lest the field of discussion becomes too large it is not proposed to refer to conditions other than those said to be caused by or related to organisms which are strictly anaerobic, *i.e.*, which require for their optimal growth the complete absence of free oxygen or an exceedingly low oxygen tension in the adjacent atmosphere.

It would be as well first to refer briefly to the conditions in the tissues or the alimentary tract of animals which would seem to favour growth and toxin production. Lack of oxygen being a limiting factor, any condition which predisposes to or creates this state of affairs, is of primary importance. In tetanus the infected wound is so contaminated by material carried into it that any available oxygen is soon used up and any from outside is excluded. Such conditions permit the development of the well-known toxin. It is also conceivable that such infections may take place through intestinal abrasions. Infection *via* the alimentary tract and toxin production in the actual lumen of the bowel is, however, not such a straightforward problem and it would appear that an alteration in the chemical state of the ingesta dependent upon a sudden change of diet—such as would, for instance, follow a change over from a very poor to a rich pasture, or a change in climatic conditions—is an important factor in the propagation of the disease. Apart from requiring a certain value for optimal growth and toxin production it has been shown[2] experimentally that, in the case of *Cl. sporogenes* certain amino-acids are indispensable for growth, the sources of energy being derived from the simultaneous oxidation and reduction of certain pairs of such acids. It has been suggested that a stasis of the bowels might also bring this about and Gordon in his experiments on grass sickness[7], produced this artificially before attempting to set up the disease in horses by administering doses of a culture of the suspected anaerobe. There seems to be also some age and species resistance or immunity, as will be shown below.

In certain practices, naturally, some diseases will be of more importance than in others—depending upon the type of practice and the nature of the country. There may be some areas where tetanus is very common or a strip of country where blackleg frequently occurs. If there are no sheep one cannot expect to become acquainted with pulpy kidney and where there are no horses there will be no grass sickness. Generally speaking, it is upon clinical evidence that the existence of a case of anaerobic infection is established, but examination of the blood of various animals by different workers for the presence of antitoxin has shed some light upon the probable occurrence of such infections. By injecting into guinea-pigs tetanus toxin plus doses of serum taken from various animals two French workers[1] showed that there was no trace of antitoxin to be found in pigs up to 18 months old, dogs whose ages varied from one to twelve years and some sheep under two and a half years of age. On the other hand, the presence of antitoxin was demonstrated in two of three cattle examined. In general the amount of antitoxin present increased with age, though young calves showed a marked passive immunity. The authors suggest that this might be derived from the mother in the first place. It would be interesting to examine records, if such are available, to discover whether the incidence of tetanus in cattle is greatest, say, between the ages of twelve and 18 months when the antitoxin content is presumably at its lowest. It is possible that the increase in immunity is not due to a series of sub-lethal attacks but to the development of small amounts of toxin by the vegetative form of *Cl. tetani* in the first three stomachs.

Of the anaerobes, the so-called gas-gangrene group of organisms are, of course, by far the most important from the veterinary point of view. Weinberg and others[8] examined the blood of a number of cows and horses and were able

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be given every three or four hours. Exposure to violet rays and inhalations of oxygen often give good results if frequently repeated. When there is no appetite a few drops of melted Brand's essence of beef (jelly) should be administered several times a day to keep up the strength of the patient. Milk instead of water should be given to drink. Large parrots may be given by the mouth a teaspoonful of the Brand's essence, or, if there is an appetite, the essence mixed with a small quantity of sweetened milk sop.

(To be continued.)

to demonstrate *Cl. septique* antitoxin in three out of 18 horse sera and nine out of 17 ox sera. *Cl. chauvoei* antitoxin was discovered in one only of 22 horse sera and 16 out of 24 ox sera. To explain the existence of the antitoxin a similar argument is advanced to that referred to in relation to the tetanus antitoxin, the antigen being the toxin found in the alimentary tract.

In order to ascertain the effects of different methods of feeding sheep, upon the normal antibody content of the serum in the case of lamb dysentery, observations were made on a batch of 40 ewes divided into three lots[12]. It was found that there was more L.D. antitoxin in the serum of grazing sheep than in that of sheep kept indoors and fed either green stuff or dry fodder.

Tetanus.—In human surgery cases of tetanus have occurred after the use of infected catgut for internal suturing. In some instances it has been possible to isolate the organism from such gut. I do not know whether cases commonly occur in small-animal surgery, but I can conceive that they might do so where due precautions have not been taken to secure sterile suture material. In New Zealand, during the last 20 years there have been 213 cases of tetanus recorded in humans and of these the proportion of males affected to females was as four to one. In the human population a preponderance of cases in the male might be expected in view of the greater exposure of this sex to injury of the skin.

Blackleg.—Blackleg, as is well known, has a restricted incidence, sporadic cases occurring almost as often as epizoötics in young animals, more especially sheep and cattle. In some countries, as in Java[2], it predominates in low-lying, chalky districts. Although *Cl. chauvoei* is usually the organism concerned, *Cl. septique*, *Cl. œdematiens*, and *Cl. welchii* are sometimes to be found as well, complicating the picture and making it uncertain as to which is actually responsible for the lesion. The buffalo is occasionally affected but apparently more rarely so than cattle.

Mastitis.—Among the many types of classified mastitis, of which the majority are due to streptococci, one now and then encounters a gangrenous case and in these the rôle played by anaerobic organisms cannot be ignored. Observations were made by one worker in Canada on 22 such cases[3] which were characterised by acute inflammation followed rapidly by necrosis and usually affecting only one quarter. The animals exhibited lameness and showed a rise in temperature to 104°F. In six out of twelve cases examined bacteriologically *Cl. welchii* and *S. aureus* were present together, *S. aureus* alone was found in two cases, *S. aureus* and another anaerobe in three instances and in one case bacteriological examination proved negative. Experimentally gangrenous mastitis was only set up when *S. aureus* and *Cl. welchii* were injected together up the teat with a blunt needle. Serum treatment did not prove effective though possibly the dose given was too small.

Bovine Hæmoglobinuria.—There seems to have been no great progress made of late towards discovering the cause of this condition (the non-piroplasmic type). It appears that more than one factor is involved in its production. In this country and abroad it has been associated for many years with certain types of grazing, more especially the rough moorland variety and similar damp, heavy, poorly-drained land. Some workers[4] have formed the opinion from their observations that it is closely related to the type of food, this influencing the bacterial flora of the intestine. Bulky succulent foods such as rape, kale and turnips favour its occurrance. An organism identical with *Cl. welchii* was observed in large numbers in the fæces of sick animals. The number diminished appreciably when turnips were withheld and increased excessively when the original diet was restored. Most of the cases occurred in the cold months when animals are most frequently stall fed and, according to the observations of these workers, recently calved cows seem to have been particularly susceptible.

Botulism.—Botulism may occur in animals more often than is suspected. It is, of course, the toxin produced only under the strictest conditions of anaerobiosis, which is the potent factor. In Australia[5], however, outbreaks of botulism in wild birds have in some parts assumed alarming proportions and tended to wipe out the bird population. These outbreaks occurred in very hot weather in swampy areas, the decaying vegetation providing the required conditions for the production of the botulinus toxin fatal to the birds. The victims showed a progressive paralysis, relaxation of reflexes and greenish diarrhœa.

Anaerobic organisms are so ubiquitous that their discovery in an unexpected situation has to be regarded with caution, and careful experiments must be carried out before the significance of their presence can be established. It was suggested during the discussion on Smith's paper[6] on White Scour in calves at the Veterinary Congress held in Edinburgh, 1934, that anaerobes might conceivably have something to do with the production of this condition. There appears to be an analogous condition in human beings, an acute flatulent diarrhœa with indications of intoxication due to *Cl. welchii* occurring in infants. Sour milk effectively stops this type of diarrhœa.

Gas Gangrene.—In the horse and ox severe cases of gas gangrene are not uncommon. Three fatal cases have been recorded by Berge[9]. These were all cases of deep muscular wounds,

Signs of emphysema appeared in from two to six days after the wound had been made. In these three cases *Cl. welchii*, *Cl. septique*, and *Cl. chauvoei* were obtained in pure culture respectively. In the cow, gas gangrene may follow a difficult calving where there has been much injury and tissue destruction in the passage and around the entrance to the womb. If blood and *débris* become included in the uterus by the premature closure of the os, then conditions suitable for the multiplication of any anaerobes present are rapidly established[10]. In the above cases the administration of a polyvalent serum might be of some advantage if given in large doses and sufficiently early.

Most of the braxy-like diseases of sheep apparently occur in this country. Information has, however, accumulated erratically—but it is clear that they are assuming an ever-increasing importance and the Agricultural Research Council have, as you are aware, at last instituted a comprehensive scheme of investigation with the object of collecting and correlating more accurate data from all parts of the country. The editorial in *The Veterinary Record* of December 14, 1935,[13] deals specifically with this proposed campaign, pointing out the valuable results which might be achieved by the close co-operation of laboratories, veterinary investigation officers and veterinary practitioners.

Perhaps I have been able to show that, after all, anaerobic organisms do play quite a considerable part in the causation of disease in the domestic animals in which we are all interested and the fact that they may be the root cause or may complicate the clinical picture must not be overlooked.

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Discussion

Invited by the President (Mr. J. F. D. Tutt) to open the discussion, Mr. H. S. Caldwell said he wished, in the first place, to thank Mr. Barron for a most stimulating paper. It was good to get beyond the narrow limits of that fashionable aspect of the subject, the sheep enterotoxaemias, and take a broad view of the anaerobes as a whole family and their application to the work of practitioners in the southern counties. "The paper," Mr. Caldwell continued, "takes a wide survey and doubtless many details will be picked out for discussion according to our individual experiences. But I think the discussion ought to be confined to the strict anaerobes and further to the spore-bearing anaerobes of the Clostridium species. Nearly sixty years ago Pasteur grew *Cl. septique* in pure culture; *Cl. chauvoei* and *Cl. tetani* were soon described, but progress was very slow and results confused because of imperfect technique and mixed cultures. The large percentage of gas gangrene in war wounds in 1914 brought the problem into the limelight and since then rapid strides have been made. Methods of anaerobic cultivation were soon improved, most parts of the world joining in the research. But what is the practical application to us here? I am a newcomer to the great chalk lands of the south and would be interested to hear the extent of the incidence of these intoxications in the southern counties. Perhaps to one who is not a bacteriologist the most striking point is the remarkable number of different clinical conditions due to serological variants of so small a group of organisms. May I very briefly mention a few. *Clostridium chauvoei* occurs in sheep and cattle; septique is found in blackleg and braxy; in œdematiens one has a type causing black disease of sheep while other types cause gas gangrene; the welchii varieties cause lamb dysentery, grass sickness and "struck," described by McEwen in Romney Marsh sheep, and enterotoxaemias described by Bennetts in Australia; *Cl. botulinus* has types A, B, and C, and numerous relatives such as luciliae, associated with limberneck in poultry, parabotulinum and so forth, causing all sorts of clinical disturbances in most animals and birds throughout the world. There are many other anaerobes not pathogenic to animals and at least one which has been used in treatment of septic wounds, namely, the Reading bacillus which is a relative of sporogenes. One important fact emerging from this is that there cannot be much hope for serum treatment except in the epidemic diseases such as lamb dysentery. In the case of the intoxications a high degree of resistance or age immunity can be acquired, though tetanus is perhaps an exception. In practice it is well known that horses can have more than one attack in a short space of time, yet *Cl. tetani* is said to be present in the intestines of most horses. With regard to immunity in cattle, it is difficult to believe that this may be the result of the development of antigens in the fore stomachs, as Mr. Barron suggests. Many of these organisms are normal inhabitants, yet losses still occur. Blackleg is said to be frequently caused by mixed infections or by septique. If so, why does vaccination with chauvoei spores give such uniformly good results in affected areas? The question was raised in the paper as to whether the incidence of tetanus in cattle is greatest between twelve and 18 months of age. In the few cases I can recall the intoxication occurred in adult cows following parturition. The reference to welchii as a cause of gangrenous mastitis is important news. Clinically the cases are acute intoxications. Has welchii antitoxin been tried? Again I am grateful to Mr. Barron for bringing before us the relationship between welchii and bovine haemoglobinuria (non-piroplasmic), a most troublesome malady. I would like to hear the latest views of the relationship between the same organism and

grass sickness. Does grass sickness ever occur in southern England? It is stated by the essayist that welchii and sporogenes cause trouble in infants, that souring of milk prevents this and that pasteurisation kills souring organisms but not the spores of the anaerobe. Does Mr. Barron consider that these facts are of any weight in the argument against pasteurisation? It was formerly fashionable to blame botulinus toxin for many unsolved mysteries. What is the reason for a period of incubation in botulinus intoxication? Does the toxin travel by the nerves as in tetanus? The paper has very clearly described the conditions necessary for lowering the resistance of the subject and suitable for the growth of the micro-organisms before they become pathogenic: this would appear to be most important. The paper has attempted to show how widely anaerobes interest us. It has succeeded admirably and I would congratulate the author and again express my thanks.

Mr. J. B. White, observing that Mr. Barron had mentioned the development of anaerobes in horses, asked if he thought that those anaerobic conditions had anything to do with the death of horses from twist. He had never been able quite to fathom why in some cases they died very quickly and in others they lived for three or four days. He knew it depended on whether it was the small or large bowel and the tightness of the twist, which in turn governed the extent of shock, but he thought there was some other factor as well. They sometimes saw a condition in the south in horses where one got a purple-coloured swelling on the coronet or the heel. The horse was usually very lame but all one could see was this purple swelling which, if left alone, would tend to spread and ooze out serum. Mr. Caldwell had asked whether they had ever seen any grass sickness in the south. He believed the Army had quite a lot at Tilshead last year: the horses died in about twelve hours, and the cases resembled colic where a twist had occurred, but this was not found. What they did find was a fair amount of welchii toxin in the bowel and he believed they considered that was the cause. They proposed to use serum, but he did not know that they ever got to that length. Personally he remembered seeing what he believed to be a case of grass sickness in Sussex but that was the only one with which he had met, to his knowledge.

Mr. G. N. Gould, after congratulating Mr. Barron on his paper, made reference to the essayist's observation as to the possibility of tetanus occurring in the dog and being the cause of death after operation. He (Mr. Gould) did not know whether Mr. Barron had ever seen tetanus in a dog, but if he had, he would never mistake it. He had seen it in a puppy within the last three months and the most surprising factor was that the puppy was absolutely stiff, like a board, and yet was apparently sensible the whole time. They tried serum in comparatively large doses, as an experiment, and various other forms of treatment. The puppy remained in a state of tetany for four days. With regard to blackleg, he did not see much of it in his district, except in two non-adjacent farms—which seemed to him to be rather peculiar. They were both small farms, and cases never ocurred in animals over twelve months of age. Both these farms had others adjoining them and in none of the latter did they get blackleg. On these particular farms, however, they had it fairly regularly and lost several calves a year from it until he started vaccination. With regard to braxy, he understood it was not very common in the south, but about seven years ago they had an outbreak on a farm not very far from there, which was subsequently confirmed by Sir John McFadyean—their President possibly would remember the case. Another point of interest in the paper was the incidence of grass sickness in the south of England. He had had two horses which he firmly believed had, within the last 18 months, had grass sickness of the subacute type. Both were cart horses, both showed typical symptoms, and both had to be shot. With regard to anaerobic organisms in mastitis; they occasionally got these gangrenous udders. He had in mind a case, which he himself had, of mastitis in a cow which had calved three months and was apparently down with milk fever. She was treated and appeared to recover in about two hours, when the udder was found to be hard. She had no temperature. The next day the cow collapsed. She was given calcium but without effect, the temperature became sub-normal and the udder was like a board. To his surprise, however, she subsequently made a very spectacular recovery.

Mr. Warnock Begg, a visitor, invited to contribute to the discussion, remarked that it was difficult to make up one's mind what to speak about on this subject because the field was so very large and he was one of those who looked rather dubiously on people who regarded anaerobes as the causal agents of a whole series of the diseases which had assumed importance in recent times. He thought these would have a vogue for a short time and that, like many other things, they would pass out again very quickly. To say that anaerobic organisms created all these conditions was nonsense: they had only to look at their bacteriology. It was very difficult to grow them in the laboratory; how could they expect them to grow so easily in the bowel and create all those conditions? He would like, with their permission, to mention one or two things about grass sickness, because he had probably had more experience than any of them there that afternoon. He had seen 700 or 800 cases, and he was very intrigued by what had been said about it. Grass sickness, to his mind, was a disease which could not be confused with anything else when seen by a man who had had considerable experience of the disease. The cases varied from the acute to the subacute and chronic types. To the casual observer ordinary colic might be regarded as grass sickness. One could see patchy sweating in many diseases, but there were one or two little things that were characteristic of grass disease. He would be unwilling to accept it as being found anywhere else than in the north of Scotland. It was a very peculiar condition and a condition that was an entity in itself.

The President, commenting on the reference in the paper to parturition injuries, observed that Mr. Barron had mentioned the tissues being torn. Did he not mean bruising?

Mr. Barron: "Yes, bruising would, of course, be sufficient to permit of the entrance of infective organisms."

The President: "You also referred, I believe, to some serum treatment. In any septic condition of the uterus I think you get the best results if you put the serum into the jugular." The President concluded by asking Mr. Barron whether he considered that Stuttgart disease was a form of anaerobiosis and whether he was aware of any anaerobic diseases of pigs.

Mr. McLachlan expressed himself as very interested in the incidence of grass disease in the south. As Mr. Begg had said, it was rather

difficult to describe: one had got to see it first before one really understood it. The disease used to be found only north of the Forth, but now it seemed to be spreading southwards.

Mr. Gould said that the two cases to which he had referred were practically identical.

Mr. Begg stated that he had never seen a case of grass disease where there was not a discharge from the nostrils and that discharge was one of those things they could never forget, because it resembled the yolk of an egg: to his mind, that was the most important symptom of all, for that was one condition that could not be found in any other disease. Further, the temperature was never a reliable guide in grass disease, and this made one wonder whether it was a bacterial infection at all: the typical temperature was round about 102°F. What infections could create a condition like that? Was it some toxin formed from some plant? His own view was that infection occurred *via* the nostril, since the first symptom one usually observed was a painful head, and in this respect the disease resembled influenza in the human being.

The Reply

In his reply, Mr. Barron congratulated Mr. Caldwell upon his opening of the discussion, adding that the paper dealt rather generally with the anaerobic diseases, and he never intended that all of the opinions advanced should be regarded as definitely established. He was glad that the question of grass disease had been taken out of his hands, for he was not acquainted with it himself nor had he heard of its occurrence in the south, and the questions asked about that disease had been ably answered by others. Mr. Caldwell had referred to the presence of several anaerobic organisms in blackleg disease and asked why it was that vaccination was so effective. He thought the explanation was that although they did find a number of these anaerobes present, in the majority of cases chauvoei was there, and perhaps more important still was the fact that the vaccine was not specific but tended to produce a group immunity. With regard to the references to diarrhœa in infants, he did not think it was fair to condemn pasteurisation. Whatever the cause, pasteurised milk could not be blamed. Concerning the period of incubation in botulinus, maybe it took some time for the toxin to reach its seat of action, but he was afraid he could not say upon what nerve endings or on what organs such toxin had its effect. Mr. White had referred to the possibility of anaerobes having some influence in producing symptoms in horses with colic and probably with a twist. He thought there might be something in that, but no experiments had been carried out to show that toxins were produced. With regard to the purple swelling on the coronet of a horse, he could not say he had ever seen such a case, but from Mr. White's description he thought that an aerobe was incriminated or perhaps one of those organisms that produced non-suppurative swelling.

Mr. Gould's experience of blackleg on two adjoining farms, neighbouring farms not being infected, suggested that perhaps it was not only the type of ground but that there were other factors coming into play. He was inclined to agree with Mr. Begg that anaerobes were rather being run to death just now but he did not agree that it was difficult to grow them in the laboratory—the conditions of growth were now fairly well established. With regard to gangrenous mastitis, he agreed that the trouble probably came from the outside and not from the inside and that a bruise was quite sufficient to permit of the entrance of these gangrenous organisms if they were anywhere about. Stuttgart disease, he believed, was still thought to be due to a vitamin deficiency, probably of vitamin B, or B complex; although he had seen references to its anaerobic origin. He was not acquainted with any anaerobic diseases of pigs.

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AVIAN DISEASES

Mr. Henry Gray, in his paper "The Diseases of Cage and Aviary Birds, with some reference to those of Furred and Feathered Game," has given us a very comprehensive article recording in many cases the result of his long experience of avian diseases. This paper was presented to the Central Veterinary Society and is being published in this and immediately succeeding issues of *The Veterinary Record*.

Until recent years the study of avian diseases has not been dealt with in the Veterinary Colleges, but this cannot be quoted as an excuse for any failure of the profession to deal efficiently with avian disease problems. The professional training in biology, bacteriology, pathology and hygiene can readily be applied to whatever species we are called to attend. The younger members of the profession who now receive instruction in avian diseases, should be especially well equipped to give this branch of our work the attention it deserves.

The individual value of many of these cage birds is considerable, and the industry of breeding and supplying aviary owners with special stock is one of great importance. Epidemics in aviaries are not of rare occurrence and Mr. Gray has given many very valuable suggestions as to how these can be combated, and the loss to the owners reduced or prevented. The introduction of new birds into an aviary, from a questionable source, is the usual cause of these epidemics.

Whilst, in many avian diseases, satisfactory treatment can be offered by the members of the profession, our greatest service to the industry lies in the field of the prevention of disease, or in the limitation of the spread of infection. When dealing with many of the owners of birds of great individual or collective value, one is amazed at the entire neglect or ignorance of the most elementary laws of hygiene and the means of spread of disease.

MR. N. P. MALE: OSTEOGENIC TUMOUR, WOLFHOUND.

PLATE I: COMMENCING OSTEOGENIC TUMOUR.

PLATE II: THREE WEEKS LATER. NOTE RADIATING LINES OF NEW TISSUE.

Members of the profession residing in the country, who have a keen interest in avian diseases, can increase the scope of their work by efficiently handling the frequent disease problems encountered on shooting estates. The early diagnosis of many of the most serious diseases in game is of the greatest importance in arresting the spread of infection. If immediate steps are not taken to prevent this spread, the prospects of a good shooting season will be ruined. With the changes which have taken place in the ownership of large estates in this country, the rearing and preservation of game in large areas for the purpose of sport is now frequently in the hands of partners of a shoot, or a company. A large death-rate in the birds, or weakly birds, means a greater financial loss to these owners than to the former landed proprietors, due to the high rent of the shoot, the employment of a large staff and expensive birds.

It has been stated previously in *The Veterinary Record*, and may be repeated, that one of the first tasks of the members of the profession is to gain the confidence of the breeders, their local societies and the people controlling shoots, by personal contact. When all these points have been attained, there will be a personal gain to the members and an enhanced reputation of the profession.

DRAFT MILK (SPECIAL DESIGNATIONS) ORDER, 1936

Sir Kingsley Wood, the Minister of Health, having considered representations made to him upon the Draft Milk (Special Designations) Order, 1936, has decided to make some modifications in the Order and to postpone the date of operation till June 1st next.

A circular has been issued notifying the local authorities concerned of the postponement of the date of operation and copies of the Order containing the modifications decided upon will be issued as soon as possible.

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As a result of negotiations between the Railway Clearing House and the R.S.P.C.A., the railway companies of Great Britain have agreed that drinking water shall be available free of charge for dogs accompanying travellers.

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The *Eastern Daily Press* publishes the ninth list of donors to the Royal Veterinary College Rebuilding Fund, forwarded by Mr. H. Buckingham, M.R.C.V.S., of Norwich. It appears therefrom that, to date, the Fund is indebted to the efforts of this enthusiast for the collection of nearly £600. Other *alumni* please copy.

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At a recent meeting of the Senate of the University of London Dr. E. C. Amoroso (Lecturer at the Royal Veterinary College) was appointed an additional Examiner in Veterinary Anatomy at the Second Examination in Veterinary Science, Part II, in 1936.

Clinical Communications*

OSTEOGENIC TUMOUR IN IRISH WOLFHOUND

N. P. MALE, M.R.C.V.S., B.Sc. [Edin.], D.V.S.M. Reading

Subject.—Irish Wolfhound dog, aged two years.

History.—While executing a particularly sharp turn at a coursing meeting the dog cried out in pain and went lame on the left hind-leg. The lameness persisted and about a week later he was brought to the surgery for examination. It was also learnt that, previous to the coursing meeting, the dog had hit his leg on several occasions on the edge of his sleeping box, but showed no ill-effects.

Examination and Diagnosis.—On examination it was found that the dog had a swelling at the lower end of the tibia immediately above the hock. The swelling extended round the limb, being more pronounced on the outside. It was fairly firm in character and showed tenderness on pressure. An antiphlogistine poultice was applied and an X-ray examination was advised. This was carried out on the following day.

As will be seen in Plate 1, no fracture was found, and it was observed that the swelling was due to what was then thought to be an inflammatory process of the lower end of the tibia, the inflammation being chiefly confined to the periosteum, the bone itself becoming slightly rarefied.

Photograph of the leg, showing swelling at time of destruction.

*Made to the Annual General Meeting of the Royal Counties Division, N.V.M.A., held at Reading, January 31st, 1936.

Local applications and internal treatment were adopted in the hope that the process would be arrested and the condition resolve. This, however, did not occur; the swelling became larger and the pain more acute. Three weeks later a second X-ray examination was made, and as will be seen in Plate 2, a quantity of dense tissue had been laid down in outwardly radiating lines from the bone. It then became obvious that one was dealing with an osteogenic tumour of a malignant nature.

Prognosis and Treatment.—This was very unfavourable, and the only courses open were amputation or destruction. As the animal would have been useless if an operation had been performed, the owner decided on the latter course.

Remarks.—In all probability the tumour was an osteosarcoma and was secondary in nature. No *post-mortem* could be carried out, so that we were unable to ascertain the primary focus, or the exact nature of the growth.

It is also thought that the tumour had been in existence prior to the coursing meeting and did not originate at that time.

It would be very interesting to hear of any similar cases.

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A HÆMORRHAGE INTO A SPLEEN

N. P. MALE, M.R.C.V.S., B.SC. [EDIN.], D.V.S.M.
READING

Subject.—Cross-bred bull terrier bitch, aged about four years.

History.—For some months the bitch had been noticed by the owner to have attacks of indigestion and discomfort after a meal, and to be abnormally large in the abdominal region. This enlargement was thought to be due to the digestive troubles, but as there was no improvement the owner decided to seek further advice.

Examination and Diagnosis.—On examination the bitch was found to have a very large and dense swelling in the abdomen, occupying most of that cavity. A tumour was suspected but an X-ray examination was advised to establish a more definite diagnosis. This was carried out and revealed a large, dense body with a smooth, round, well-defined border situated behind and not associated with the liver. From the examination of the plates, from the symptoms and from palpation it was thought to be either a haemangioma of the spleen or a tumour involving one or more or the abdominal lymphatic glands.

Prognosis and Treatment.—Prognosis was not favourable, but it was decided to perform an exploratory laparotomy in case the growth could be removed.

The operation was performed and there was revealed what was at first thought to be a haemangioma of the spleen. Splenectomy was carried out, the whole of the spleen and the growth being removed.

The bitch made an uneventful recovery from the operation but died a short while afterwards.

Remarks.—On pathological examination the "growth" was found to be a simple hæmorrhage which had become organised, its weight being 6 lb. The case is recorded on account of the very large size and weight of the hæmorrhagic mass.

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Discussion

Major H. Kirk, in discussing the first of Mr. Male's cases, mentioned a case of a Cocker spaniel which had been brought to him by a veterinary surgeon to be X-rayed. There was a very considerable enlargement of the right ramus of the lower jaw. The picture showed radiating lines similar to those described by Mr. Male in the case of the wolfhound's leg. The condition was undoubtedly one of osteosarcoma and it had taken about three months to double the thickness of the ramus. Treatment was not attempted.

After examining the radiograph shown by Mr. Male in connection with the case of gross splenic enlargement, Major Kirk said that, from a strictly radiological point of view, there was no distinguishing feature between the shadow on his (Mr. Male's) film and that which might be caused by a collection of pus, or dropsical fluid; because these, and extensive hæmorrhage, all cast a similar hazy shadow. In illustration of this point, he remembered the case of a dog which had been run over three days prior to its being presented to him for X-ray examination. The dog could not stand on its right fore leg and the owner thought the shoulder must have been fractured. A radiograph showed an extensive haziness which partially obliterated the bony structures of the shoulder. It suggested pus, and a huge abscess was found surrounding the joint.

Mr. B. G. Catmur said that clinical and radiological observations must be taken together. For example, Mr. Male, in interpreting the plate in connection with the hæmorrhage into the spleen, was probably in a position, from his clinical observation of the condition of the animal, to say that the shadow was not due to the presence of pus. [We regret that the X-ray plate to which reference is made in the discussion of Mr. Male's second case report is not suitable for reproduction, being insufficiently clear as to detail.—Editor.]

Mr. R. A. Willett said that a greyhound had been brought to him in June of last year suffering from a hæmangioma of the spleen. The animal was operated on and the spleen removed. The owner had since reported to him that the dog had won two races. It seemed amazing to Mr. Willett that the spleen could be so easily dispensed with.

Mr. G. P. Male asked Mr. Willett if spleen was fed to the animal in this case.

Mr. Willett replied in the negative.

Major Kirk asked whether anybody present could remember a case of splenectomy in which the patient had suffered in any way from the loss of its spleen. He understood that the spleen was rather active in the replacement of leucocytes, and wondered how long an animal could live or remain in health without one.

Mr. Barron remarked that not many leucocytes originated in the spleen, as that organ was more concerned with the destruction of

Abstracts

[Undulant Fever due to Brucella abortus bovis. (Trans. title.) Rossi, P. (1935.) *Rev. gén. Méd. vét.* **44.** 518. 65-92. (Refs. 59.)]

This is a full review of the literature on the subject and, to be properly appreciated, should be read in the original. The difficulty of diagnosis is recognised, but the condition appears to be on the increase in France, though the official figures form no true guide. It has been suggested that this increase might be due to the increasing use of live vaccine for cattle. While man may become infected by the consumption of milk or cheese, it is more usually the result of handling infected animals. This assumption is based on the fact of the enormous number of *Brucella* in milk and the comparatively small number of cases of undulant fever.

Three types of infection in man are recognised. (1) Infection, but showing no symptoms —the commonest form. (2) With local symptoms, usually in the form of pustules on the skin of the arm. The author supports the view that this may be a form of allergy. (3) Generalised infection, or undulant fever, with intermittent high temperature, sweating, etc.

No case is as yet on record of infection being passed from man to man, but man has been infected from the horse.

The full history of four cases of undulant fever is given, and it is emphasised that, in France at least, undulant fever due to *Br. abortus bovis* is no longer a medical curiosity but an increasingly common condition.

A. W. T.

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[Diseases of Young Calves: A Bacteriological Examination of 100 Cases. Lovell R., and Hughes, D. L. (1935.) *J. Comp. Path. & Therap.* **48.** 4. 267-284.]

Losses among calves due to disease are known to be serious in this country and the authors' hoped by bacteriological examination of calf carcases to provide a classification of such diseases based on their aetiology. They point out, however, that it is unlikely that all their cases could be explained by bacterial infection alone; errors in diet, housing, and general hygiene may act alone or in concert with living agents. They examined 100 fresh carcases and the following bacterial conditions were met with and are briefly described and discussed.

(a) *Bact. coli.*—Thirty-seven cases fell into this group and the organism appeared to play some part in the disease process in six further cases. All of these infections were of the nature of "white scours"—a disease known to attack calves during their first few days of life. The greater number here described, died during their first week of life and at *post-mortem* there was a lack rather than the presence of any definite anatomical changes. *Bact. coli* was isolated in the majority of cases from the blood, spleen and bone marrow in addition to other sites, indicating the septicaemic nature of the disease.

(b) *C. pyogenes* infection accounted for twelve cases and the organism was also present with other pathogens in five more. The *post-mortem* findings in this group were quite uniform, showing consolidation of lungs with areas of necrosis and suppuration, and a fibrinous pleurisy. Symptoms, when observed, were in conformity with the *post-mortem* findings, namely, coughing and respiratory distress. Seven of the twelve calves were one month old or less.

(c) *Haemolytic cocco-bacillus*—an organism which the authors at the moment prefer to refer to as a haemolytic cocco-bacillus—is apparently similar to *B. bovisepticus* Group I of Jones. It accounted for six cases, the symptoms produced being cough, respiratory distress and a nasal discharge, whilst a lobular consolidation of the lungs was evident at *post-mortem.*

(d) *Salmonella* infection accounted for two cases, both being due to *S. typhi-murium* (*Bact. aertrycke*).

(e) *Pasteurella.*—One case was considered to be due to infection with Pasteurella alone.

(f) *Mixed infections.*—Eleven cases were due to two or more pathogens, such as *C. pyogenes, Pasteurella, Staph. aureus, Ps. pyocyanea, Bact. coli* and the haemolytic cocco-bacillus.

The remaining 31 cases are placed into a "miscellaneous group" in which the cause of death was variable.

The general results accord fairly well with the work of other authors and serve as a basis for further investigations. R. L.

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[Contagious Abortion of Streptococcal Origin in Milch Cows on the Isle of Mauritius. Lionet, F. E. (1934.) *Rec. Méd. vét.* **110.** 7. pp. 394-397.]

A special dairy herd was founded on the Island in 1922, with Friesian cattle imported from South Africa.

Two initial abortions occurred in that year, but no special importance was attached to this. Only one further abortion occurred up to 1925, but in the succeeding years abortions became progressively more frequent, and in 1930 40 per cent. of all pregnant cows aborted.

Examination of the dietary of the herd revealed the presence of ergot, but this was

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leucocytes. Mr. Barron cited a case of a golden retriever which he had known, from which the spleen had been removed. The animal had continued in normal health for two years, but then contracted a very severe skin disease and had to be destroyed.

Major Kirk remarked that Mr. Barron's case was interesting in view of the fact that spleen extract was now used in the treatment of eczema.

shown to be innocuous by feeding experiments on pregnant cows.

The absence of *Brucella abortus* was established by serum-agglutination tests on all the cattle.

Examination of the stomach contents of the fœtuses failed to reveal *Vibrio fœtus* (common in South Africa) but constantly revealed a streptococcus "viridans" (*a*-hæmolysis), also present in the heart-blood, spleen and kidneys.

Subcutaneous and intravaginal inoculation into pregnant rabbits of 24-hour gelatine cultures of the streptococcus resulted in abortion 9 to 18 days later.

A vaccine was prepared according to the method of Besredka. The toxin was concentrated from ten-day-old broth cultures by precipitation with $CaCl_2$, heated at 60°C. for one hour (method of Roux and Yersin) and the resultant powder incorporated in vaseline and lanoline to produce an ointment. This was used *per vaginam* in one of the above experimental rabbits. Full-term pregnancy followed and a normal litter of five (all living). No streptococcus could be isolated from the three of the litter that were examined. (Experiment apparently uncontrolled.)

The vaccine was then tried in cattle, four grammes of the ointment being applied intravaginally as follows: One application daily for three consecutive days; one application every eight days during the ensuing six months; bi-monthly for the next six months; subsequently all cows received an application once every three months.

Following this treatment, abortions decreased from 21 in 1931, to twelve in 1932, and four only in 1933. (No percentages given.)

E. O. L.

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[Akiron: A New Preparation for the Treatment of Piroplasmosis, Babesiellosis and Nuttalliosis. *J. S. African Vet. Med. Assoc.* **6.** 1. 54-56.]

This communication is reprinted from a news letter to Government veterinary officers and deals with the administration of "akiron R," an "akiron"-rephrin combination, in animal piroplasmoses. It is stated that the addition of rephrin has been effective in preventing the toxic symptoms produced by "akiron" alone, but it is advised that the compound should be injected intramuscularly or subcutaneously and not intravenously. Actually, Bayer Products, Ltd., have ceased the manufacture of "akiron R," and now recommend the use of "akiron," which has been renamed "acaprin," followed by an injection of rephrin if severe toxic symptoms develop.

"Akiron R" is said to have given good results in the treatment of canine piroplasmosis under experimental conditions, though relapses necessitating repetition of treatment have been encountered. Good results have also been claimed for its use in equine trypanosomiasis. It has the advantages over trypan blue that a much smaller quantity of fluid is injected, abscess formation is avoided and there is no staining of the tissues or discoloration of the milk.

The following doses are recommended: Cattle, 10 c.c. of a 5 per cent. solution for animals weighing about 500 kg. given intramuscularly or subcutaneously; horses, 3 to 6 c.c. of a 5 per cent. solution intramuscularly; sheep, 1 c.c. of a 5 per cent. solution intramuscularly; dogs, 1 c.c. per 10 kg. body weight of a solution made by adding 5 c.c. of a 5 per cent. solution of "akiron" to 95 c.c. of sterile normal saline solution. This solution will keep well and can be used as required. U. F. R.

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[Paralytic Rabies in Livestock. Metivier, H. V. M. (1935.) *J. Comp. Path. & Therap.* **48.** 4. pp. 245-260.]

An account is given of outbreaks of paralytic rabies in livestock which have occurred recently in Trinidad. The first occurrence of the disease was noted in 1925; since that date, the disease has reappeared frequently. All the affected animals were out at pasture; the chief symptoms shown were staggering gait, salivation and, later, paralysis. The disease spread in an irregular manner until the whole of the island became involved. All domestic animals were affected; only two cases are reported in dogs. In man, an outbreak of an ascending myelitis was reported; the mortality was 100 per cent. A similar disease in domestic animals is reported from South America.

The disease is caused by the virus of rabies; this has been confirmed by the demonstration of Negri bodies, and by neutralisation of the virus by means of the serum of animals immunised with the fixed virus of rabies. The virus is present in the nervous system and saliva of the affected animals; the disease is not directly transmissible from one animal to another—the chief vector of the disease was found to be the true vampire bat, *Desmodus rufus*. This bat attacks dark-skinned animals for preference, particularly in the shoulder region. The attacks occur at twilight and during the night.

Clinical symptoms vary considerably, but paralysis supervenes in all cases. Slight periods of excitement precede the paralytic stage; horses appear to be more excitable than bovines. At the onset of the disease, symptoms of nervousness are seen, accompanied by grinding of the teeth and a lateral movement of the head. Slight salivation and incoördination of movement in the hind-limbs are evident. On the second day, the symptoms are further advanced and there is profuse salivation. The staggering gait is very marked. On the third day, the

animal is unable to rise; it froths at the mouth; urination ceases and the fæces become hard and reduced in quantity. Consciousness is not lost at the onset of paralysis; the paralysed parts become hypersensitive, but before death the skin is completely anaesthetised. Death usually occurs in three to five days.

In horses more excitement is shown, with frequent impairment of vision.

On *post-mortem* examination the chief lesions are congestion of the brain and meninges, with perivascular infiltration of the capillaries by round cells and lymphocytes. Negri bodies are not always demonstrable in sections of the hippocampus.

In the early stages the disease may be confused with colic or tetanus.

No curative treatment is possible; for preventive treatment, bat-proof cowsheds are recommended in which the animals may be housed at night. The use of rabies vaccine is strongly recommended, a carbolised vaccine of fixed virus (33⅓ per cent. emulsion) being used; very satisfactory results have been achieved. The article is well illustrated with several photographs. E. C. H.

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[Some Observations on Plant Poisoning. Simonnet, H. (1935.) *Rec. Méd. vét. Alfort.* **3.** 4. 193-196.]

In European countries, cases of plant poisoning are usually sporadic, this being due to the fact that the pastures are small and carefully looked after and that the animals are not left to range over wide areas of meagre pasture which may contain numerous poisonous plants as in America, South Africa or Australia. Plant poisoning is, however, more common than is generally supposed and attention should be paid to the following points.

Poisoning by yew, colchicine, belladonna, etc., usually occurs in one or two members of a herd only and when numbers of animals in the same herd are affected, it is very often due to the addition to the ration of a plant which resembles a harmless one, *e.g.*, yellow lupin, *Cassia occidentalis*, *Phaseolus lunatus*, etc. Another common cause of loss is the ingestion of plants or feeding stuffs which contain cyanogenetic glucosides. It appears that the amount of glucoside present in a plant varies with the age of the plant and the rapidity of its growth and that it represents a stage in the protein metabolism. It must also be borne in mind that there is a latent period before the toxic action of some plants becomes apparent and also that in some cases the effects produced may resemble those of a bacterial infection. A number of plants considered poisonous could, however, be introduced into pastures with advantage because of the beneficial action of their active principles, *e.g.*, aromatic or stomachic, but this should not be left to chance. J. A. N.

N.V.M.A. Divisional Reports

ROYAL COUNTIES V.M.A.*

ANNUAL GENERAL MEETING AND DINNER

President's Address at Reading

The Annual General Meeting of the Royal Counties V.M.A. was held at the Caversham Bridge Hotel, Reading, on Friday, January 31st, 1936. The President, Major J. J. Dunlop, occupied the chair, and the following members were present: J. W. McIntosh, Esq. (President of the Royal College of Veterinary Surgeons), Messrs. J. H. L. Addis, N. S. Barron, J. Bell, J. Carless, B. G. Catmur, T. A. R. Chipperfield, Captain J. Craft, Messrs. P. Crosfield, E. J. Gill, H. Gooch, Lieut.-Colonel H. Greenfield, Major R. C. G. Hancock, Captain J. R. Hewer, Major H. Kirk, Mrs. P. M. Kon, Messrs. G. P. Male, N. P. Male, Lieut.-Colonel P. J. Simpson, Major F. J. Taylor, Lieut.-Colonel G. K. Walker, Messrs. F. W. Willett, J. Willett, R. A. Willett and H. Bell (Hon. Secretary). Messrs. Avery and R. W. K. Kefford were present as visitors.

The minutes of the last Annual General Meeting, having been published in *The Veterinary Record*, were taken as read.

The following members apologised for inability to attend: Messrs. A. J. Baxter, J. R. Baxter, Captain R. E. C. Bullen, Professor J. B. Buxton, Captain J. C. Coleman, Major A. C. Duncan, Major G. W. Dunkin, Sir Frederick Hobday, Major H. G. Lepper, Mr. T. Lepper, Captain W. L. Little, Captain J. McKerlie, Major-General Sir John Moore, Dr. A. L. Sheather, Mr. H. C. Shingler and Lieut.-Colonel P. W. Dayer-Smith.

Before asking the Secretary to read the correspondence, the President said that he felt sure it would be the wish of every member in the room that a letter be sent to Sir Frederick Hobday telling him with what concern they had learned of Lady Hobday's distressing accident. The Hon. Secretary was instructed to write to Sir Frederick and convey this message, and also to express the hope that Lady Hobday might be granted a speedy return to health.

Correspondence.—The Secretary read the following letters:—

(1) From Mrs. Hancock expressing her thanks for a letter of sympathy which had been sent from the November meeting, following the death of her husband.

(2) From the Hon. Treasurer of the Victoria Veterinary Benevolent Fund expressing thanks, and acknowledging the receipt of the sum of £3 6s., on behalf of the Fund.

(3) From the Hon. Secretary of the National

*Received for publication February 21st.

Horse Association asking for the continued support of the Royal Counties in the coming year. It was decided to renew the subscription of one guinea to the Association.

Balance-Sheet.—Mr. J. Willett moved the reception and adoption of the Balance-Sheet. On the proposition of Lieut.-Colonel Simpson it was decided that the number of members in arrears with their subscription should be shown on the Balance-Sheet.

R.C.V.S. Library.—On the proposition of Mr. McIntosh, seconded by Major Hancock, it was decided to renew the subscription of two guineas to the Library Fund of the Royal College of Veterinary Surgeons, and that a donation of one guinea be added to this amount for this year.

Nomination for Election to Membership.—Dr. A. C. Fraser, B.V.Sc., M.R.C.V.S., of Lambourn, was proposed by Mr. N. S. Barron and seconded by Captain J. R. Hewer.

Elections to Membership.—Mr. E. S. Paterson, of Windsor, and Mr. K. N. Scott, of Reading, were unanimously elected to membership.

Place of Next Meeting.—It was decided to hold the next meeting at the Ministry of Agriculture's Laboratory, New Haw, Weybridge.

Morbid Specimens and Cases of Interest

Mr. Norman P. Male introduced this section of the proceedings by recounting two cases, with exhibits: (1) Osteogenic Tumour in an Irish Wolfhound; (2) A Haemorrhage into a Spleen. [Mr. Male's description of these cases is transferred to the Clinical Section of this issue, together with a report of the discussion which followed their presentation.—*Editor.*]

Mr. R. A. Willett asked if anybody could give him some advice to help him in the treatment of a case of a Pekingese suffering from a varicose ulcer on the bulb of the penis. The animal had been losing blood at the rate of about half-an-ounce every second day, and despite repeated irrigations with astringent solutions of several kinds there had been no abatement of the hæmorrhage.

Mr. H. Bell said that he and his partner had had a very similar case several years ago in an Irish terrier. For quite a time they had been unable to find from where the hæmorrhage emanated. The source was traced to a small ulcer on the penis, and they had adopted rather drastic treatment, namely, the application of the actual cautery, the patient being put under chloroform. The treatment had the desired effect. This treatment had proved successful on more than one occasion since.

Lieut.-Colonel H. Greenfield now presented a canine tooth, which had rather an interesting history. A twelve-year-old Cairn terrier had been brought to him in a very emaciated condition, due to chronic nephritis, and after the dog had been subjected to treatment for the nephritis and had shown some improvement in its condition he decided to attend to the teeth, which were in an appalling state. The patient being vicious, a gag had to be used. During the operation the animal had struggled and a canine tooth had apparently been broken. After a week or so the animal was again presented to him with the history that there had been hæmorrhage from the nostrils, at irregular intervals. On examination of the mouth, the teeth and gums appeared healthy but it was found that the canine tooth (exhibited) had not been broken, as it was thought, during the previous operation, but had been driven up into the nostril. The tooth was removed and in a very short time the patient increased 1 lb. in weight.

Mr. B. Catmur recounted a case in which he had extracted a canine tooth from a Pekingese dog, and was greatly alarmed because there was considerable hæmorrhage from the nasal chamber, the floor of which he thought might have been fractured.

Major Kirk described an operation in which he was called upon to extract a canine tooth from the upper jaw of a powerful dog. As 50 per cent. of the canine teeth are firmly embedded in the alveolus, extraction was a matter of considerable difficulty, and in the present case he feared fracturing the jaw. Consequently he made an incision through the cheek and drilled a hole over the apex of the root, removal being effected by repulsion.

Mr. P. Crosfield described a case in which he had attended a cow at parturition. He had first of all removed a five-months-old fœtus with no hair and showing no signs of putrefaction. After the removal of this fœtus he successfully delivered a full-time calf. He would like to ask, was this a common occurrence?

The President said that he received an urgent summons late one night to visit a valuable thoroughbred brood mare. The animal had been barren for three years and had been treated by several eminent veterinary surgeons on this account. Two opinions were given to the effect that the mare would never breed again. However, one man had treated her at a later date, and she had proved in foal.

On the occasion of Major Dunlop's visit, the animal was found to be colicy and straining badly. The rectum was everted to an alarming extent. Opiates and sedatives were administered and the rectum replaced with great difficulty, and then an examination was made of the genital passage. A dead foal was found presenting, and this was delivered. It did not seem to have been dead for any length of time, but was premature and had the appearance of a seven-months fœtus. The rectum continued to be everted at every attempt to examine the genital tract further, so he finally reduced it and

left a man to try and keep it in place, further sedatives having been administered. On examination early the following morning the mare was found to be in a very bad way, and the owner was informed that she was unlikely to live. Further examination of the genital tract, complicated by eversion of the rectum, revealed the presence of another fœtus, which was delivered. This foal had the appearance of a five-months-old development. The mare had now stopped straining and drank some gruel. She was taken out of the box and walked across the yard but, coming back, she collapsed and was destroyed. The rectum was found to be perforated. The history of the mare was that she had been served at various dates by different sires, and it was thought that possibly these fœtuses had resulted from different services.

Major Dunlop replied in the negative when Mr. G. P. Male asked if the second foal had been dead for some time.

Mr. Male observed that, in the case of a twin pregnancy, it was often found that arrested development had taken place, one foal being much bigger than the other. Sometimes one died early in the pregnancy and the other lived on to be born at full time.

Major Dunlop added that the stud groom was emphatic in this case that he could recognise the colour in each foal of the respective stallion used.

Major Kirk expressed the opinion that superfœtation never really occurred. As a breeder of Siamese cats he had had it forcibly brought to his notice that queens, which had been mated (at considerable cost) to well-bred stud cats, might escape into the garden at some subsequent date, and be mated by the ever-ready black prowler. The kittens, in every case, had proved undoubtedly to be the progeny of the mongrel cat. In other words, he had never seen a mixed litter.

Captain Craft enquired if it was possible, after a mare had been settled, that the os could admit spermatozoa from a second service. Abortion in the mare could be so easily brought about by tampering with the os that superfœtation, in his opinion, was impossible.

Captain Hewer said that, in his view, superfœtation could not take place, as experience taught them that interfering with the os would quickly bring about an abortion.

Major Dunlop: "Against that, how long can spermatozoa remain alive in the vagina?"

Mr. G. P. Male: "Three or four days appears to be the accepted time."

A vote of thanks to those who had presented morbid specimens or cases of interest was passed with acclamation, on the proposition of Major F. J. Taylor.

Any Other Business

Under this heading Colonel Walker proposed, and Mr. J. Bell seconded, that "Future membership of the Royal Counties Veterinary Medical Association shall be confined to members of the National Veterinary Medical Association." (This was a recommendation from Council.)

Mr. Male said that although he would like to see this come about, he thought as many as possible should be members of the local Association, and that the local Association ought to be the recruiting ground for the "National." He thought it was a mistake to introduce any rule which might deter members from joining the local Association. He was not moving an amendment, but he should vote against the proposition as it stood.

Colonel Walker thought that they could not do much in this connection at that meeting, because it meant an amendment in the rules, and he believed that it was not permissible to make an alteration in the rules without due notice having been given on the agenda summoning the meeting. However, he felt that no harm would be done by ascertaining the feeling of those present on the suggested change.

Mr. McIntosh asked what would be the position of those who were members of the local Association at present, and not members of the "National."

Colonel Walker, replying, said that the proposal applied only to new members.

After some discussion it was decided that the proposed alteration of rules should appear on the agenda summoning the next Annual General Meeting.

President's Inaugural Address

The President (Major J. J. Dunlop) now delivered the following Address from the Chair:—

In rising to make this my inaugural Address to you as President of the Royal Counties Veterinary Medical Association, for the coming year, I must first tender to you my thanks for the honour you have conferred on me.

This Division has a splendid history and the list of past Presidents contains many illustrious names. To be associated with them is in itself an honour I much appreciate. I believe it is usual on occasions such as this to give one's individual impressions as to the state of our profession.

I must at this stage plead guilty to having taken in the past a not too deep interest in our politics. Like too many others I have, I am afraid, been content to do my own bit of work, earning a more or less honest living, and leaving the affairs of State to others. The time has now come, however, in my humble opinion, when we shall all have to bestir ourselves and

think more broadly and not, if I may use the expression, so parochially. Great changes are taking place and many more are mooted. Some of those changes will, I believe, in time greatly benefit us as a profession provided we obtain our just and rightful recognition.

I consider that if ever there was a time when our College motto of *Vis Unita Fortior* needed to be acted on, it is now. Probably no great change has ever occurred whereby some individuals were not adversely affected, but it should be our duty to see that every branch of the profession gets its rightful share of any new advantages. That can only be obtained by a strong and united effort. I am no pessimist as regards the outlook for the future; on the contrary, I feel that as events are shaping now, the profession has an opportunity to take a standing and position we have never before attained. But I do feel we shall have to be on our guard, and that wise counsels and, above all, cohesion in our ranks, are essential. That we have a leavening of wise counsellors is, I think, undoubted—as a proof one might quote the report of the Special Committee of the N.V.M.A. on the Hopkins Report.

To my way of thinking, our colleagues who framed that report showed a deep and intimate knowledge of the intricacies of the subject. That sufficient notice will be taken of their recommendations is another matter, and it is here that I feel our united strength will be required. In last Saturday's *Record*, the report of the quarterly meeting of the Council of the N.V.M.A. shows what a great amount of work they have to perform, and how they are tackling the various problems. Let us as individuals and as a Division support them wholeheartedly.

I may be wrong—I hope I am—but it appears to me that there has recently been a springing up of different interests—a widening of the ranks, as it were. This spirit will not carry us far and, it is to be devoutly hoped, will be curbed if it does exist. I know of no better way to do this than by personal discussion and airing of views, and as this can best be done at our Divisional meetings I would appeal to all members to do their very best to attend regularly. I know only too well the difficulties the practitioner has in doing so, but it is generally well worth the effort. It is here, too, that our general policy should be shaped and our opinions passed on to higher quarters. The attitude of *laissez faire* which has to some extent been apparent in the past should be obliterated, and we should endeavour to let our voices be heard and to ensure that attention is paid to them. I feel that we, as a profession, should have more say in the shaping of the future policy in affairs veterinary, and not acquiesce in certain proposals likely to be detrimental to at least a section of our brethren.

We are living in a time of progress, and we must progress too. Much of this progress is belated, but "better late than never." To my mind, a system of State Veterinary Medicine is a logical result of such progress. Let us make up our minds what we think is best for the community and in doing so endeavour to safeguard our own interests and insist that our natural rights and activities shall be allowed to remain intact. If we are divided amongst ourselves, it cannot be expected that the full benefit of the changes that are occurring will accrue to us.

With very little encouragement or help other than by their own efforts the practitioners of the past generations have battled against animal disease, and with no mean measure of success. That their efforts need correlating and guiding, and welding into a homogeneous whole cannot be gainsaid, but it is to be hoped that the financial benefits which may accrue will not be withheld from them: if they are, then I can only foresee the passing of a splendid body of men who have borne the brunt of the battle in the past. That they will be missed by the agriculturalist goes without saying and presumably more and more work will be performed by the quack. This would be a retrograde step and one to be fought against with all our might.

The College course has been extended to five years. Bands of young scientists are annually launched forth to make a living. I cannot foresee many of them taking on the hardships and rigours of country practice unless the emoluments are in keeping: it is not to be expected that they should. In the present state of agriculture the taking away of part-time work would spell disaster to many. Therefore, I repeat, let us stand by our College motto, and I feel sure that if we do so the future is bright. No matter if you are a whole-time inspector, a part-time inspector, or a private practitioner, you should support the settled policy of our Council who, I am confident, are fully alive to what is necessary.

Turning to other aspects for a moment, one is forced to foresee the passing of the horse from our streets. One knows the arguments for and against, and probably one's sympathies are with the pro-horse brigade, but to my mind "the writing is on the wall." We know all the horse can do, but we have probably far from reached the maximum efficiency of mechanical transport: every day improvements are being made in that direction, and although I am loth to admit it, I fear the days of horse transport on any large scale in towns are numbered—one rarely sees a gig or dog cart now. I am old enough to remember when all our work was

done by that method of transport and many a bitter cold journey have I known. The younger men going round nowadays in their fast sports cars or comfortable Rolls Royces should spare a thought for their forbears who drove or rode horses round their practices. The coming of the motor, therefore, has not been altogether an evil for us.

Small-animal practice continues to increase amazingly and makes up in full for loss in other directions. The student of to-day has a wonderful tuition in the College clinics, under skilled surgeons, and if his bent lies in that direction can obtain a very full measure of knowledge and skill.

One notes with regret and concern the establishment of organisations to tend the sick and injured animals, which do not employ professional men. I consider those organisations to be a menace and that they should be fought with all our energy: the pros and cons of the situation are delicate, but I feel that strong measures should be taken to combat them.

The lady graduates have arrived and are now taking their places in the profession; the scope for them in small-animal practice is, I imagine, ample, and I am sure many will be most successful. I may be old-fashioned, but I cannot think that agricultural practice holds any place for a lady: it seems to me that girl students should not be asked to go through the drudgery and often unpleasant hardships of general practice, which will rarely be of any practical use to them. I make the suggestion that if the profession continues to attract ladies a special course be arranged for them in small-animal study only.

Hunting is fortunately still with us, and it will be a sad blow to the country if ever the time comes when the ultra-kind-hearted cranks succeed in stopping it, but even here one hears of more and more difficulty being experienced in successfully running packs in some districts. An encouraging sign, however, is the development of pony clubs and the large number of children being taught to ride. There can be no finer sight than that of a band of happy youngsters experiencing the joys of riding in this age of mechanisation. More adults, too, are taking to riding, possibly as a corrective of a too sedentary life. I am, of course, referring to a section of society other than hunting people. Riding would probably be still more widely in vogue were the roads not so dangerous, but I think there has recently been a definite improvement in that direction, and possibly in time the perfect surface will be discovered, safe for both motor and horse.

I fear that my Address has been of a rather rambling nature—my attempt to put down some of my impressions has been handicapped by a lack of spare time for the necessary thought, and you all know that practice has an unfortunate knack of upsetting the best-laid schemes. Nevertheless, I would like to reiterate, before concluding, that my chief impression of our present-day state is that we need solidarity in our ranks. Let all different sections of our profession remember that we all do belong to the same brotherhood, and that it is only by sticking close together that we shall be able to make our weight felt, and then attain what we believe we should have.

I look forward to our Division experiencing a successful and harmonious year, and would ask you all to support it by your presence at the meetings. I hope there will be read to us some good papers, of practical interest to all. In my view, one of the greatest benefits of belonging to a Division is to have the chance of discussing our professional problems with others, and so of securing the benefit of ripe experience and advice.

Our thanks are due to the retiring President, Captain Bullen, who so ably filled the Chair during the past year and who is unfortunately unable to be present to-day.

I thank you again for the honour you have bestowed upon me and for the patient hearing you have given me. I hope you are all coming to the dinner to-night, and that we shall have a pleasant evening as the forerunner for the year of other enjoyable and instructive meetings.

Annual Dinner

The Annual Dinner was held, following the Annual General Meeting, at the Caversham Bridge Hotel.

In addition to the President and those members already mentioned as having attended the Annual General Meeting, the following were guests: Mr. J. W. McIntosh (President of the Royal College of Veterinary Surgeons), Messrs. Avery, Blackwell, Craft, Curtis, Everett, Findlay, Hewer, Kefford, McGarry, Taylor, Dr. Thomson and Mr. Tims. Captain J. R. Barker (President of the National Veterinary Medical Association) apologised for his inability to be present.

At the conclusion of dinner the President proposed the toast of His Majesty King Edward VIII.

Mr. Avery, of Maidenhead, in proposing the toast of the R.C.V.S., coupled with the name of the President of the College, traced the growth of the Royal College since the granting of the Charter, mentioning the work which it had accomplished and was now doing. It seemed to him, as a layman, that the veterinary profession could do a great deal to improve the health of the race by eradicating disease from the domestic animals. Did we not all depend upon milk as our sole food at the beginning of our lives? How very important it was, then, for

the veterinary surgeon to look after the health of the animals which produced that milk, for only in that way could disease, in some part, be eradicated from human beings. He felt sure that the veterinary profession would fulfil its rôle in this connection, given the opportunity. He thought that the R.C.V.S., with a man such as Mr. John McIntosh in the Presidential Chair, was bound to continue the good work which it had been doing.

Mr. McIntosh, in his reply, thanked the President and members for having him there that evening as a guest, and said that, while he appreciated the honour, he realised that it was conferred, not because of any special qualities of his own, but by virtue of his office as President of the Royal College of Veterinary Surgeons. He was particularly grateful to Mr. Avery for the very kind way in which he proposed the toast, and for the many nice things he had said regarding him.

It was, at all times, a responsibility to reply to that toast, but that night the responsibility was somewhat intensified in the presence of so many of his distinguished colleagues.

He would endeavour, however, in the few observations he had to make, not to infringe the bye-laws of the College.

As Mr. Avery had already told them, the Royal College of Veterinary Surgeons obtained their Charter in 1844, but it was not until the year 1881 that the Veterinary Surgeons Act gave a real legal position to the practitioners of veterinary science in this country. The Charter made provision for the government of the profession by providing for the election of a Council and officers and imposing upon that body certain specified and well-defined duties. There appeared, however, to be some misapprehension in the minds of many as to the Council's powers and authority under that constitution. He was afraid that the limitations imposed by their Charter and Acts of Parliament were not fully realised and appreciated.

Mr. McIntosh then spoke of the work which was being done by the Council and assured the meeting that whatever views might be held to the contrary, their representatives, as a body, were discharging their duties with every sense of responsibility as to what their decisions might mean, not only to the profession and its individual members, but also to the general community.

It would, he thought, be difficult to instance any other profession that had made such rapid strides since the granting of their Royal Charter less than 100 years ago. Looking back over his own somewhat long period as a member of the profession, he thought they had every reason to congratulate themselves on the advance made and while they did not yet receive that full measure of recognition and authority which their services to the State and to the individual demanded, progress was being maintained and so long as the profession showed a united front on the real fundamentals which made for progress, that fuller recognition which was long overdue, could not be long delayed.

There were many other topics of general interest upon which he had very definite views, but that was not the time or the place to ventilate them.

He would like to compliment their President on his very excellent Address, which he was sure would be read with renewed interest and benefit when it appeared in print. He congratulated him, too, on his election to the Chair and wished him a very happy and successful year of office.

Again he would like to thank Mr. Avery for proposing the toast, and the President and members for the way in which they received it, and last, but not least, for the welcome they extended to him personally.

Dr. Thomson, in proposing the toast of the Royal Counties Division, coupling with it the name of the President, spoke of the number of members who had held office in the Chair of the Royal College and of the "National."

The President having made reply, Mr. G. P. Male proposed the toast of the guests.

The company were entertained by Mr. Alec. Walker and Mr. Howard Spencer, with Dr. Thomson at the piano. H Bell, *Hon. Secretary.*

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SOUTHERN COUNTIES VETERINARY SOCIETY*

WINTER MEETING AT WINCHESTER

The Winter Meeting of the Southern Counties Division, N.V.M.A., was held at the Royal Hotel, Winchester, on Friday, January 17th, 1936, when Mr. N. S. Barron contributed an interesting paper on "Anaerobes and Disease in the Domestic Animals."

The President, Mr. J. F. D. Tutt, was in the chair while the members present included Miss A. Cust, Messrs. N. S. Barron, F. Beckett, H. S. Caldwell, G. N. Gould and J. B. White, with Miss P. L. Williams, and Messrs. G. Warnock Begg, J. D. McLauchlan, W. A. Milligan, and N. R. Timbull as visitors.

The minutes of the previous meeting, as published in *The Veterinary Record*, were taken as read and were confirmed.

Correspondence.—The Hon. Secretary announced the receipt of the following letters:

(1) From Sir Frederick Hobday, Captain R. E. C. Bullen, Messrs. B. Gorton, E. R. Harding, G. P. Male, W. F. Maynard, G. Parr, A. E. Roberts, H. C. Rockett, J. H. Ripley, Dr. A. L. Sheather, and Major J. S. Wood, apologising for their inability to attend the meeting.

*Received for publication February 6th, 1936.

(2) From the N.V.M.A. concerning the payment of expenses of delegates to the Council meetings of that body. The meeting agreed that delegates sent to the National from this Division should be paid their expenses unless those delegates wished to pay their own.

(3) From Messrs. W. Caudwell, of Bournemouth, and J. T. Turney, of Worthing, resigning their membership, the latter gentleman having taken up an appointment in Derbyshire. These resignations were accepted with regret.

(4) From the Royal Sanitary Institute, inviting the Division to send a delegate to the Health Congress of that body, as in previous years. It was unanimously agreed that, in view of the distance and the difficulty of obtaining a delegate, the Division should not be represented this year.

"*Accredited*" *Herd Inspections.*—The Hon. Secretary explained that since the last meeting their President had been in communication with the Hants. County Council concerning the Accredited Herd inspections in that county, which had been the subject of considerable discussion at the last meeting. They had since had the assurance of the Hants. County Council that any lapse in the work of inspections allotted to local practitioners had been due to temporary disarrangements, and that alternate inspections were now being carried out again by the practitioners. In the light of that assurance, the President and he did not consider it necessary to do anything further in the matter.

Nominations and Elections.—Mr. M. E. White, of Petersfield, who was nominated at the last meeting, was elected a member. Messrs. G. Warnock Begg, J. D. McLauchlan, and W. A. Milligan were nominated for election on the proposition of Mr. F. Beckett, seconded by the President.

Paper.—The President then called upon Mr. N. S. Barron to read his paper, which was heard with much appreciation, and was followed by a very general discussion. [Mr. Barron's paper, and a report of the discussion, are published earlier in this issue.—*Editor.*]

The President proposed a hearty vote of thanks to Mr. Barron for his paper and also to Mr. Caldwell for opening the discussion and the proposal was seconded by Mr. J. B. White and carried with acclamation.

Any Other Business.—Under this heading, a general discussion took place between the members, on the relations between whole-time officers and general practitioners. As a result, the following resolution was adopted on the proposal of Mr. F. Beckett, second by Mr. G. N. Gould: "That this Society stresses the importance of a closer co-operation being obtained in the future between the various branches of veterinary service, and in particular that the activities of Veterinary Investigation Officers should be limited to that scope in which they would be of the greatest value both to practitioners and to agriculture; also that any work carried out by them in the field must be with the consent of the private practitioner." It was agreed that this resolution be forwarded to the Council of the N.V.M.A.

Tea was afterwards enjoyed at the kind invitation of the President.

J. B. White, *Hon. Secretary.*

In Parliament

The following questions were put and answers given in the House of Commons on Tuesday last:—

Milk

Mr. de Rothschild asked the Minister of Health whether he will reconsider the proposal to lower the cleanliness standard of tuberculin-tested milk by substituting the methylene blue test for the plate count for bacteria?

Mr. Shakespeare: My right hon. Friend is advised that the standard of cleanliness which it is proposed to apply to tuberculin-tested milk by means of the methylene blue test is substantially the same as that applied at present by the plate count, and that the new test gives more reliable and consistent results. My right hon. Friend does not at present see any reason for abandoning it, but it is not proposed to bring it into operation until next year and he will be prepared to make any adjustments in the method of carrying it out which experience may show to be desirable.

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Mr. de Rothschild asked the Minister of Health whether in view of the health value of pure, clean, raw milk, and in view of the high standard of cleanliness of tuberculin-tested milk, he will reconsider the proposal to institute a separate grade of tuberculin-tested pasteurised milk, in order not to restrict the market for the highest grades of pure raw milk by fostering the idea that the safety of even tuberculin-tested milk would be enhanced by pasteurisation?

Mr. Shakespeare: My right hon. Friend is giving consideration to this matter in the preparation of the new Special Designations Order.

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Mr. Johnston asked the Minister of Health whether his attention has been called to the report of the Medical Research Council for 1934 to 1935, just issued, urging the importance of the consumption of more liquid milk by pre-school children and nursing mothers; and whether he will consult with the Secretary of State for Scotland and the Minister of Agriculture with a view to immediate steps being taken to give effect to this recommendation?

Mr. Shakespeare: Yes, Sir. My right hon. Friend intends to give full consideration to this report in consultation with my right hon. Friends the Secretary of State for Scotland and the Minister of Agriculture.

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Horses and Mechanisation

Major Carver asked the Minister of Agriculture whether, in view of the fact that the recent census showed that there are over 1,300,000 horses in this country and that accordingly, on the basis that a horse consumes approximately

10s. worth of fodder a week, these horses consume British agricultural produce to the value of over £30,000,000 per year, he can state whether he is taking any steps, both to guard against the tendency to introduce on farms mechanised transport dependent on imported fuel and to discourage the banning of horse-drawn transport on the roads?

Mr. Elliot: With regard to horse-drawn transport on the roads, I would refer my hon. and gallant Friend to my reply on December 16th last to a question on this subject by my hon. Friend the Member for Thirsk and Malton (Mr. Turton). [See *Veterinary Record*, December 28th, 1935.—*Editor.*] The question as to how far mechanisation should be adopted on farms is one I think which must be left to the discretion of the farmers themselves.

Notes and News

The Editor will be glad to receive items of professional interest for inclusion in these columns.

Diary of Events

Mar. 25th.—Meeting of the Section of Comparative Medicine of the Royal Society of Medicine, at the Royal Veterinary College, Camden Town, N.W.1., 4 p.m.

Mar. 26th.—Annual General Meeting of the Southern Counties Division, N.V.M.A., at Salisbury, 2.30 p.m.

March 27th.—Meeting of the Midland Counties Division, N.V.M.A., at Birmingham, 2.30 p.m.

Mar. 30th.—N.V.M.A. Committee Meetings.

Mar. 31st.—N.V.M.A. Council and Committee Meetings.

April 1st.—R.C.V.S. Annual Fee due.
R.C.V.S. Committee Meetings.

April 2nd.—R.C.V.S. Committee Meetings.

April 2nd.—Victoria Veterinary Benevolent Fund Council Meeting.

April 3rd.—R.C.V.S. Committee and Council Meetings.

April 4th.—Annual General Meeting of the North of England Division, N.V.M.A., at Newcastle-on-Tyne, 11.30 a.m.

April 6th.—Meeting of the Editorial Committee, N.V.M.A., at 2, Verulam Buildings, Gray's Inn, W.C.1, 4 p.m.

May 7th.—Last day for nominations for election to R.C.V.S. Council.

May 21st.—Voting Papers issued, R.C.V.S. Council Election.

May 28th.—R.C.V.S. Council Election Voting Papers due.

June 4th.—R.C.V.S. Annual Meeting and Luncheon in Edinburgh.

June 11th.—D.V.S.M. Examination begins.

June 24th.—R.C.V.S. Committee Meetings.

June 25th.—R.C.V.S. Committee Meetings.

June 26th.—R.C.V.S. Committee and Council Meetings.

June 29th.—R.C.V.S. Membership Examinations begin.

Sept. 14th-18th.—N.V.M.A. Annual Congress, Scarborough.

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PERSONAL

Mr. Truman's Successes at the Percheron Stallion Show

Mr. H. H. Truman, J.P., M.R.C.V.S., the Maze, March, had a run of successes unprecedented in the history of the show at the annual stallion parade of the British Percheron Horse Society at Histon, Cambridge, on Wednesday of last week. He won the championship with his famous stallion March Viking, the reserve championship with Bedlam Buccaneer, and carried off every first prize in the show. His successes were all the more remarkable in view of the fact that the show was, according to the general consensus of opinion, the best in the history of the Percheron Society. The judge, Captain T. A. Howson, Wrexham, the secretary of the Royal Welsh Agricultural Society, described Mr. Truman's exhibits as outstanding.

Mr. Truman exhibited March Viking (Hache-Viking—Easter) in the aged stallion class, which attracted an exceptional entry of thirteen, including several champions. He was placed first and champion of the show. The red card carried with it a prize of £7, while the championship carried a fifty-guinea challenge cup and a £20 special prize. Bedlam Buccaneer (March Viking—Casague), Mr. Truman's entry in the three-year-old class, was placed reserve champion—this carried a £10 special prize—and was, of course, first in his class earning a £7 prize. Bedlam Rover (March Viking—Choucroute) won the first prize of £7 in the two-year-old class.

This was the second year in succession in which March Viking has won the Society's championship. His other successes include: 1st prize at the Peterborough Show 1930, Res. Junior Champion R.A.S.E. Show 1931, 1st at the Society's Stallion Show, 1st at the R.A.S.E. Show 1932, 3rd at the R.A.S.E. Show, 1933, and 3rd at the Society's Stallion Show 1934.

His sons Bedlam Buccaneer and Bedlam Rover, who completed this outstanding run of "family" successes, were foaled on April 4th, 1933, and March 11th, 1934, respectively.

Our colleague's gratification at his outstanding success, which our readers will share, must have been enhanced by the fact that the entry for the show was exceptionally good, while there was a record attendance.

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Tributes to Colonel J. Irvine Smith.—At a recent meeting of the Johannesburg City Council, it was decided to accept the recommendation of the General Purposes Committee that the services of Colonel J. Irvine Smith, Director of the Abattoir and Livestock Market Department, be retained for another three years, despite the fact that Colonel Irvine Smith will reach the retiring age in August next. The Chairman said that Colonel Irvine Smith had not asked for this extension, but, in making their recommendation, the Public Health Committee had in mind the fact that he had been in the Council's service for thirty years and had had the unique distinction of receiving, on three occasions, votes of the Council's highest appreciation of his services.

The abattoir was Colonel Irvine Smith's life's work, while he was responsible for the establishment of the white labour policy at the abattoir. It was not only the finest abattoir in the Union, but among the best in the world.

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BEQUEST TO THE VICTORIA VETERINARY BENEVOLENT FUND

Will.—Mr. JOHN RICHARD CARLESS, of Ford's Heath, Salop, retired veterinary surgeon, who died on December 25th, aged 78, left estate of the gross value of £12,877, with net personalty £11,649. He left, subject to his wife's life interest: £100 to the Royal Salop Infirmary and £250 to the Victoria Veterinary Benevolent Fund.

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R.C.V.S. OBITUARY

GEORGE, John, Magherafelt, Co. Londonderry. Graduated Edinburgh, April 15th, 1887; died February 26th, 1936, age 70 years.

RYAN, Hugh Thomas, D.S.O., F.R.C.V.S., Lieut.-Colonel R.A.V.C. (retd.), Castleview, Ballincollig, Co. Cork. Graduated London, July 15th, 1898; died March 12th, 1936.

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THE LATE LIEUT.-COLONEL RYAN

It is with much regret that we record above the death of Lieut.-Colonel H. T. Ryan, who was a valued contributor to the clinical columns of this journal, which have often borne witness to his masterly powers of observation and his ability to apply his knowledge and experience in the field of equine pathology. A close friend, in transmitting from Ireland the news of Lieut.-Colonel Ryan's death, which took place at Bon Secour Home, Cork, writes: "He was held in the highest esteem and respect not only by his colleagues but by all who had the privilege of his acquaintance. By his death the profession has lost a trusty supporter and an exceedingly genial personality."

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THE LATE MR. G. M. MITCHELL

At the funeral of Mr. George Marshall Mitchell, of Abbeygate, Beechwood Street, Sunderland, whose death was recorded in our last issue, which took place at the Bishop's Wearmouth cemetery on March 10th, the Durham farming community, among whom he was well known, was very widely represented, the late Mr. Mitchell having been Sunderland's oldest veterinary surgeon. Amongst the family mourners were Professor and Mrs. W. M. Mitchell and Mr. and Mrs. G. O. Mitchell, while other members of the veterinary profession present were: Mr. J. W. Rider, Captain J. R. Rider (Hon. Secretary, N.V.M.A.), Mr. J. J. McDowell, Mr. G. M. Oliver, Mr. T. Wilkinson and Mr. D. Dudgeon, the last named representing the North of England Veterinary Medical Association, of which Mr. Mitchell was a past President.

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GENERAL OBITUARY

PROFESSOR J. S. HALDANE

We regret to record the death at Oxford, at the age of 75 years, of Professor J. S. Haldane, who was outstandingly eminent in both pure and applied science. As a physiologist, Haldane revolutionised ideas on respiration. Between 1892 and 1900 he introduced a number of new methods for investigating various aspects of the respiratory functions, publishing papers on methods for determining the respiratory exchange, the amount of haemoglobin in the blood, the quantity and tension of the gases of the blood, the volume of the blood, and the analysis of air. The apparatus which he designed for air analysis, described fully in his "Methods of Air Analysis," published in 1912, and for blood gas analysis, is widely used at the present day.

The year 1905 saw the publication of what is undoubtedly the most important and fundamental of his physiological researches. In this paper, in which he was associated with Dr. Priestley, he showed that the regulation of the breathing is normally determined by the tension of carbon dioxide in the respiratory centre in the brain, and that this nervous centre is exquisitely sensitive to variations in the tension of carbon dioxide in the arterial blood which reaches it. Since carbon dioxide is one of the principal products of the metabolism of the tissues, an explanation was afforded of the automatic changes in the breathing which occur with alteration in bodily activity. Indeed, this paper afforded the first real insight into the astonishing delicacy with which the quantitative co-ordination of the natural activities of different parts of the body may be brought about by chemical means. A few years later investigations in this and other countries established the fact, which had been suspected from the start, that carbon dioxide owed its action to the effects which it had on the alkalinity of the blood.

To Haldane physiology implied the nature of the life of the organism, to understand which the organism must be studied as a whole. Hence almost the whole of his researches were made with man as his subject; he established the subject of human physiology on a true basis, showing how delicate methods of chemical and physical investigation can be used to elucidate normal function in an intact person. In applied science or industrial hygiene his work was not less valuable, for the solution of the problems which he took up has been of direct and lasting benefit to mankind. To mention only a few, the relation of Professor Haldane's brilliant researches to the elucidation of the practical problems of the age in which he lived is exemplified by the almost invariable association of his name with the virtual conquest of the dangers of "black damp" and "after-damp" in mines, and of caisson disease, and with much of such progress as has been achieved in evolving satisfactory anti-gas equipment.

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DR. CHARLES NICOLLE

Dr. Charles Nicolle, director of the Institut Pasteur de Tunis from 1903 till 1936, has recently died in Tunis at the age of 70. Educated in Rouen, his scientific researches covered a wide field and concerned, among other subjects, scarlet fever, measles, influenza, kala-azar, trachoma, malaria, yellow fever, leprosy, etc. Perhaps his greatest scientific achievement, however, was his demonstration in 1909 of the mode of transmission of typhus. Body lice (*Pediculus corporis*), which had sucked the blood of a monkey infected by the inoculation of blood from a typhus patient, were shown to be capable of transmitting the disease to other monkeys on which they were subsequently allowed to feed. From 1909 onwards, Nicolle continued his typhus researches, studying the experimental disease in various animal species and the conditions under which it is transmitted. In 1927 he received the Osiris prize and in 1928 the Nobel prize, while in 1932 he succeeded Professor d'Arsonval as professor of the Collège de France.

ULSTER LOCAL AUTHORITY VETERINARY SERVICES

Compensation for "Over Age" Part-Time Men

In the Northern House of Commons on March 12th, Mr. Fryar asked the Minister of Agriculture whether veterinary surgeons, who were only part time in the service of local or sanitary authorities, and who, on account of their age, were not appointed as veterinary surgeons under the recent Act of 1934, were entitled to receive reasonable compensation for loss of employment in such duties as they performed in the counties of Down and Armagh for the County Councils; whether their financial loss on the average during the last three years of such services amounted to over £300; and whether Section 4 of the Diseases of Animals Act, 1934, was specially put into the Act to enable County Councils to pay such compensation.

Mr. George B. Hanna, replying, said the answer to the first and last parts of the hon. member's question was in the affirmative, as part-time officers were not normally covered by the Superannuation Acts. The section mentioned by the hon. member was inserted in the Diseases of Animals Act, 1934, in order to meet their case. He was not in a position to say what the average financial loss of such officers had been, but the cases of a number of them were at present being considered, and suitable compensation would be awarded at a very early date.

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LEGAL NOTES

Contravention of the Public Health (Meat) Regulations.—Before the Wootton Bassett magistrates on March 11th, a butcher and his slaughterman answered summonses relating to meat, alleged to be diseased, which they had sent to Smithfield Market. The prosecuting solicitor said that on October 20th, at four o'clock in the morning, a veterinary surgeon paid a surprise visit to Smithfield meat market and there discovered a quantity of diseased meat showing the presence of tuberculosis and pleurisy. "This filthy stuff came from Wootton Bassett, having been sent by Strong (the butcher), who later admitted that he was the owner and alleged that all this meat had been passed by the local meat inspector," the solicitor declared, and proceeded to allege that this defendant had killed two further beasts following the inspector's visit. The inspector in question went to London and was shown the meat that was under suspicion. It was meat from four beasts and he had never seen or passed it.

In reply to this defendant's solicitor, the local meat inspector said that he gave evidence on this case before a court in the Guildhall, London, when the butcher was fined £20 and his slaughterman £40.

Mr. Grace, Veterinary Officer employed by the City of London Corporation, said that the carcases were affected with tuberculosis and pleurisy and all the animals were in a poor and emaciated condition.

The butcher was fined a total of £30 inclusive of costs and the slaughterman £3, the Bench stating that they had taken the unfortunate position of the latter into consideration, as he was saddled with the heavy burden of a penalty of £40 and had lost his position.

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Farmer's Losses of Livestock: Unusual Action.—Before Mr. Justice Findlay and a special jury at the Sussex Assizes on Monday last, the action was commenced in which Mr. Albert Winter, of Eastbourne, in a civil action, claimed damages from Mr. Harrie Stacey, of Place Farm, Firle. The plaintiff alleged fraudulent misrepresentation on the letting of a farm, and alternatively claimed damages for breach of warranty on the letting of a farm. There was a further alternative of a claim of damages for "nuisance by noxious vegetation in and upon the said farm."

The hearing was completed on Tuesday, when the jury returned a verdict for the defendant, and judgment was entered accordingly. His counsel said he did not desire costs.

Mr. J. D. Cassels, K.C., and Mr. Graham Brooks were for the plaintiff, and Mr. John Flowers, K.C., with Mr. Blanco White, for the defendant.

Counsel for the plaintiff, in his opening statement, said that Mr. Winter was the tenant of the farm from 1918 until 1932, and during that period he suffered terrible misfortunes. His cattle and his horses died in enormous numbers. It seemed as if there were almost a blight or curse upon the farm. Even cats and dogs fell dead there. He paid fees to veterinary surgeons—several of them—and still the hand of death seemed to remain upon his animals. Finally he left the farm in 1932. He left it an absolutely ruined man.

The plaintiff sought to establish that Mr. Stacey, the landowner owning the farm in question (Lower Claverham Farm) knew when he let it that it was a dangerous one for a dairy-farmer, that he let the farm through an agent, and that the defendant represented it to be a good dairy farm when, all the time, he knew that it was not fit for grazing cattle, and further that Mr. Stacey knew that it was a farm where a dairy farmer would be bound to experience serious trouble. The plaintiff said he was induced by these representations and by the knowledge of Mr. Stacey to take his farm, and he now sought to recover damages for what he alleged was a very serious fraud. Mr. Stacey denied that there was any misrepresentation or fraud and said that the agent who let the farm was not his agent. Mr. Stacey denied that the farm was dangerous and not fit for grazing cattle, and further, he pleaded the statute of limitations.

In the first 18 months or two years, Counsel added. Mr. Winter's tenancy pursued a normal course and he lost no cattle. In 1920 he lost a horse and then started to lose cattle. In 1922 he lost a valuable horse, worth £100. He had been working that horse, and at the end of its labours it was turned out with five others and suddenly it dropped dead. Mr. Winter lost cows. They became ill and he had to send them away.

In 1925 he was still losing cows. Some were represented as having died from tuberculosis. Cattle used to lie about the fields as if under the influence of a kind of dope. Veterinary surgeons thought at first that a good deal of the misfortunes were due to the disease known as "drop."

By 1929 Mr. Winter seemed to spend most of his time dealing with notices from the police, the Sussex County Council, and the Ministry of Agriculture. He was frequently slaughtering animals which had fallen ill, and they continued to die, in the words of Mr. Winter, "like flies."

In October, 1932, Mr. Stacey, in a conversation with Mr. Winter, mentioned that there had once been anthrax on the farm. The curious thing about the cattle, said Counsel, was that they died so suddenly. There was actually one instance of a cow suckling a calf when an attack came on and she fell dead, crushing the calf to death. Rabbits shot were found to be diseased. Mr. Winter lost dogs and cats, and altogether he lost 265 cattle in 14 years. He had employed eight

veterinary surgeons and lost his milk contract between May, 1931, and May, 1932. Altogether he calculated that he lost £9,000. Witnesses would be called to say that there had once been an outbreak of anthrax in 1892, and animals which died there were buried where they fell. The suggestion had been made that there came from the dead animals germs which gradually rose to the surface, contaminating the feeding on the ground.

The plaintiff, in evidence, spoke of the losses of stock, also of cats, dogs, ferrets and Angora rabbits, and added that when he once said to the defendant, "You knew there was anthrax on the farm," the latter made no reply.

In cross-examination he agreed that he did not think that previous tenants had complained. The farm had supported a farmhouse for 1,000 years. For the first two years of his tenancy he thought it a good dairy farm.

The plaintiff did not agree with the report of the Ministry of Agriculture that the death of his cattle was due to tuberculosis, mastoid, fluke disease and poisoning with water drop wort. At no time did the Ministry test for anthrax.

A later witness gave evidence that there was an outbreak of anthrax at Claverham Farm in 1892.

At the second day's hearing, a farmer gave evidence that he had occupied a farm adjoining Claverham for 50 years and remembered the outbreak of anthrax, which caused a sensation at the time.

Mr. Tom Rowland, of Clay Hill Farm, spoke of buying two lots of cattle from Mr. Winter. Of the first lot of seven he destroyed two the same night he bought them. Those two animals were in bad condition, but he could find nothing definitely wrong with them; they seemed to be pining away. Of the second lot he bought one died the same night, and he killed two more the next morning. He could not discover what was wrong with them.

Mr. George William McArthur, veterinary surgeon, of Marine Terrace, Seaford, said Mr. Winter came to him in February, 1931, and explained the situation. He visited the farm and had the cattle under observation on many occasions.

Mr. Cassels: Would you describe it as a good dairy farm?—Anything but, I should say.

Why?—Well, the most essential thing where milk is produced is an abundance of clean cold and hot water. There was very little of that there. The old buildings were not sanitary and the farm itself is a very waterlogged, low-lying farm.

If carcases of animals dying from anthrax should be buried on a farm and buried without being burned is there likely to be a serious result following from that in years to come?—Yes, certainly, and more so if the carcases have been cut and hacked about as many of these were.

How would anthrax affect the farm if there had been anthrax there in years gone by?—It would be very dangerous; in fact it would be a permanent legacy on the place.

The Judge: Suppose you have animals which died from anthrax buried there?—It produces anthrax. Anthrax can only be produced from anthrax.

At the close of the plaintiff's case Mr. Flowers submitted that it was abundantly clear that, in spite of the fact that Mr. Winter suffered losses in his cattle during the later years of his tenancy, he had no legal claim against the defendant. Mr. Stacey could not have fraudulently concealed anything in the letting of this farm because he never came in touch with Mr. Winter.

Addressing the jury, Mr. Flowers said that seldom could more scandalous accusations of fraud have been brought against a person of the highest character.

Evidence for the defence was then called.

Mr. Albert K. Burtenshaw, estate agent and auctioneer, of Hailsham, said that early in 1918 he came into touch with Mr. Winter, who said that he wanted a farm. He inserted an advertisement and was later told that the then tenant of Claverham Farm wished to leave. From start to finish in the transaction he was never instructed by Mr. Stacey. He considered Claverham a good dairy farm.

Cross-examined, Mr. Burtenshaw said he knew that there had been anthrax on the farm in 1892, but did not know whether he mentioned it to Mr. Winter.

Mr. Cassels: Would you think it proper to let a farm on which there had been anthrax 24 years before?—Yes, certainly.

Mr. Josiah John Cleeve, who was a tenant of Claverham Farm from 1910 to 1914, said that he had no unusual losses of cattle. He did not know there had been anthrax on the farm when he took it.

The Judge: Would it have affected your going there if you had known at the time that there had been anthrax there?—I should not have looked upon it so favourably.

Mr. Harrie Stacey, the defendant, giving evidence, said that during recent years he had been farming between 3,000 and 4,000 acres. He had never had any allegations of any kind made against his character. He bought the farm in 1912 for £5,750 for one of his sons. When he bought it he knew there had been an outbreak of anthrax in 1892, but that did not deter him from buying it; he thought that after that lapse of time it was safe. He did not regard Claverham as a dangerous farm and he did not conceal anything from anybody. When in 1927 he heard that Mr. Winter was losing cattle, he offered to accept half rent if he would pay his arrears, but Mr. Winter did not pay.

Edgar John Stevens, of New Farm, Chalvington, said that his father hired 61 acres of Claverham Farm after Mr. Winter had left. He had had no trouble with his sheep or cattle and had not lost any animals. Richard Alfred Vardy, of Berwick, who now farms part of Claverham, said that he had had no losses there.

Richard Henry James Jesse, Director of Agriculture for East Sussex, said that he did not know of any case of anthrax during the whole time Mr. Winter was at the farm.

This closed the case for the defendant, and Mr. Flowers addressed the jury.

Mr. Flowers submitted it must be proved that the cattle died of anthrax. One of the most astonishing things in this very astonishing case was that there was no suggestion in the statement of claim that Mr. Stacey fraudulently concealed that there had been a case of anthrax on the farm in 1892.

Mr. Cassels, for the plaintiff, submitted that Mr. Stacey knew that Claverham was a dangerous farm for a dairy farmer and that it was wrong of him to let it for that purpose.

The Judge, in summing-up, said that it was remarkable that in the statement of claim there was no reference at all to anthrax. Undoubtedly Mr. Stacey knew all about the disastrous outbreak of anthrax in 1892, but it was very far from proof of fraudulent misrepresentation to state that Mr. Winter had suffered most unfortunate and to some extent unexplained losses. Until a very late stage nothing had been said about anthrax.

After an absence of ten minutes the jury returned a verdict for the defendant, and judgment was given for him.

Mr. Flowers said that he was instructed not to ask for costs.

The Judge, remarking that the plaintiff was a poor person, stated that the counsel and the solicitors who had appeared for him had done a public service in what was an important case.

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Foot-and-Mouth Disease: Prohibition of Entry to Premises in Infected Area.—The Ministry of Agriculture draws attention to a prosecution of special interest to all persons having business in any Foot-and-Mouth Disease Infected Area, which was heard at Malmesbury, Wiltshire, recently. The case was one in which the occupier of farm premises in an infected area, and actually adjoining an infected farm, had posted a notice at the entrance of his premises, in accordance with the powers given by Section 13 of the Diseases of Animals Act, 1894, forbidding persons to enter his premises without special permission. The person prosecuted arrived at the farm to deliver goods and, ignoring the notice at the entrance, drove his motor car up to the house notwithstanding that his attention was drawn to the notice by one of the men working on the farm. The defendant was fined £5 and 9s. costs for entering the premises without permission. The Ministry add: "The power of an occupier of premises in an infected place or area to prohibit the entry of any person without permission was specially conferred by the Act to enable farmers to safeguard their stock as far as possible from infection which might be carried on the boots or clothes of persons or on the wheels of vehicles. It has been exercised increasingly in recent years and it is satisfactory to note that the power of the farmer to protect himself in this manner has been upheld in the Courts."

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Lame Horses at a Riding School.—For causing unnecessary cruelty to three horses by working them in an unfit condition, the owner of a riding school, at King's Norton, was fined £9 and ordered to pay £1 11s. costs at Wythall on March 6th, it being stated that one of the horses was 25 years old, extremely emaciated, flat-footed and lame. Two other horses were also stated to be in a bad condition.

Mr. T. N. Gold, veterinary surgeon, Redditch, said that these riding schools were very hard work for horses. The people who rode them were bad "jockeys," and that made a lot of difference.

Defendant's solicitor said that his client paid £18 and £16 respectively for two of the horses a few months ago, but he had taken the veterinary surgeon's advice and had them slaughtered. With regard to the emaciation it was impossible to fatten an old horse.

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Swine Fever at Coleraine.—Important cases affecting the pig industry of Northern Ireland were heard by Mr. H. R. Jones, R.M., at Coleraine, recently, when James M'Lean, New Row, was summoned on five accounts for failing to notify the Ministry of Agriculture that pigs in his possession were affected, or suspected to be affected, with swine fever, and for permitting their removal.

The solicitor for the prosecution said that in October last 31 live pigs were removed by a man named Gilmour from defendant's premises and taken by lorry to Dungiven market. Five of these were sold there to a Mrs. Hassan, and the remainder to a dealer named Doherty, of Limavady, who afterwards sold them to various persons in the Kilrea district. Later they came in contact with other swine in places as far distant as Strabane, Portadown, and Belfast. Nearly all the swine were subsequently found to be infected with fever, and altogether between 200 and 300 pigs had to be slaughtered. The cases were of the utmost importance to the farming community.

The defence was that defendant had no reason to suspect the presence of swine fever, and that the pigs looked to be all right when they left his place.

After a lengthy hearing the Crown withdrew one of the summonses, and in each of the other four a fine of £5 was imposed.

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Unsuccessful Attempt to Drown Dog.—The Ambleside justices recently fined a man £5, with costs, and debarred him from keeping a dog for three years, for cruelty, inflicted on the animal by placing it in a sack with a stone, weighing 16lb., and throwing it in the River Rothay. A strong current carried the sack down to shallow water, where the dog found an opening in the sack and got his head through. A witness said she heard an animal's cries, and on finding the dog stopped some cyclists, one of whom waded into the river and retrieved it; it was then unconscious. The dog recovered later. The defendant said the dog had fits, but the druggist would not destroy it. After his boy had taken the dog to the police he tried to drown it out of kindness.

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FORMATION OF TUBERCLE-FREE HERDS IN DURHAM

North of England Division's Voluntary Scheme

Captain J. R. Rider, Hon. Secretary of the N.V.M.A. and President of the North of England Veterinary Medical Association, has forwarded, in response to our enquiry, the following information relative to the voluntary scheme which, following its conception and drafting by the Division, is being launched in Durham, with the active co-operation of the Durham Branch of the National Farmers' Union, with the object of building up tubercle-free herds in that county: "The scheme itself is quite simple in conception. It provides for the periodical testing, and rearing in isolation, of calves, these animals being used subsequently to replace existing herds. Co-operation and consultation between County Veterinary Officers and practitioners is provided for (the latter doing the testing and general supervision, and the former undertaking work relating to propaganda, education of farmers generally and co-ordination of effort, as well as consultations with practitioners where necessary), and the whole scheme, which is entirely voluntary in conception, is to be managed by a joint committee composed of representatives of the N.F.U., and this Division. It is hoped, therefore, that this organisation will enable the farms participating to be selected with due regard to the facilities which exist for carrying out the plan, and to avoid the pitfalls which would certainly arise if every applicant were accepted, without reference to the suitability of the premises for the purpose."

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INTERNATIONAL HORSE SHOW: THIS YEAR'S SCHEDULE

The twenty-fourth International Horse Show, of which the late Admiral of the Fleet Lord Beatty was president, will be held at Olympia from Saturday, May 30, to Tuesday, June 9,

inclusive. The schedule recently issued, gives the aggregate value of the prizes at £4,616, divided among 93 classes.

The principal sections are:—Twelve jumping competitions, with £2,320 in prizes; 17 classes for riding horses (£544); 14 classes for hunters (£544); 24 classes for harness horses and ponies (£492); ten children's classes (£222); six classes for trade turn-outs (£195); four classes for four-in-hands (£168); and four classes for polo ponies and officers' chargers (£141).

The most valuable challenge cup offered is the King George V Gold Cup in the international officers' jumping competition. The value of this trophy is £500, and the cup is for perpetual competition, having been won outright by Lieut. J. A. Talbot-Ponsonby (7th Queen's Own Hussars) in 1934 and re-presented by him. It is open to military officers of any nationality riding in uniform their own horse or that of a regiment or cavalry school. Other cups for jumping are:—International Challenge Cup, for teams of three officers of the same nationality in uniform, which was won outright by Great Britain in 1928 and was re-presented by the Army Council for perpetual competition; the Connaught Challenge Trophy, value £100, for jumping over the course by serving officers in uniform of the British and Oversea Dominions forces; the *Daily Mail* Champion Cup, value £100; the Irish Army Challenge Cup, value 50 guineas, presented by the Minister of Defence of the Irish Free State; and a champion cup for high jumping presented by Lord Wright.

Among the other trophies are.—The Moscow Challenge Cup, presented by the Imperial Racing Club of Moscow of 1914, for ladies' hacks; a champion cup given by Mr. J. A. Dewar for novice single harness horses or ponies; a challenge cup given by Mr. C. F. Goddard for the best single harness horse in the show, which has been won for the last two years by Mrs. E. Henriques; a challenge cup, value £50, also given by Mr. Goddard, for four-in-hands; the Rawnsley Challenge Cup for the best pony ridden by a boy or girl; the Mappin Cup for road coaches; the *Horse and Hound* Champion Cup for the best novice hunter; two champion cups presented by Lord Marshall for hunters; a cup value £50 presented by Messrs. Tattersall for the best hunter in the show; the Schweppe Challenge Cup, value 100 guineas, for the best ladies' hunter, ridden side-saddle and won for the last two years by Mrs. S. Barrett; and a cup presented by Mr. J. V. Rank for hunt teams.

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THE VALUE OF THE LIGHT HORSE

Lord Middleton, vice-president of the Hunters' Improvement and National Light Horse Breeding Society, speaking at a luncheon held in connection with the Society's show, said that motor cars had superseded horses on the roads and to a limited extent on the land, but lolling about in cars afforded no exercise, and those who would keep fit still kept horses if they could. The Society received a grant from the Government because horses were still required in the Army. Mechanisation of artillery and cavalry had made great headway, but it had not been wholesale and cavalry continued to exist and horses would be needed for some time yet. They must remember that the Army might have to campaign in countries where wheeled transport could not go. The grant given by the Government for horse breeding was still justified, and would be until many problems had been solved.

With regard to the production of light horses for civilian purposes, hunting was an immense asset to the country. The benefit it brought to the agricultural community far outbalanced any damage that might be done. He had often seen estimates of the number of men directly and indirectly employed by the sport of hunting. It was impossible to make an accurate estimate of the number of men who lived by hunting. It might be possible to make a census of hunt servants and stable men; but what of tailors, bootmakers, saddlers, makers of clothing, veterinary appliances and medicines, and now makers of motor horse-boxes and suchlike innovations? Did they employ 250,000 or 400,000? He did not know, but those were the figures in the picture—figures of substance, anyway. Pony clubs were doing much to ensure that the younger generation would keep fit and healthy on horses instead of running to adiposity in cars, and they hoped the Society would enable them to find horses to ride when they had outgrown their ponies. The greatest need of the Society was increased membership. They had about 1,800 members. In view of the great interest in hunting and riding, he thought that number ought to be doubled.

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NATIONAL PONY SOCIETY: SECRETARY'S FINE RECORD

The show now being held (March 20th and 21st) by the National Pony Society at the Royal Agricultural Hall, Islington, is noteworthy as being the "silver jubilee" show of the popular Secretary, Mr. Frederick H. Badge, who has been responsible for each show since his appointment in 1911.

The first show of the National Pony Society was held in 1900, a very few months after Mr. Badge had joined the staff, and was a very small exhibition. The prize money amounted to £215 with 102 entries for the three stallion, two brood mare, three young stock and two riding classes. Mr. Tresham Gilbey, Sir Alfred L. Goodson, Bart., and the Rev. D. B. Montefiore are the only survivors of the Council who organised this show. This year, the schedule comprised 53 classes with prize money amounting to £1,100.

The National Pony Society has always endeavoured to encourage Children's Riding Classes, and Mr. Badge recalls that it was at the first show that he organised in 1912 that the Society first offered a class for Children's riding ponies, *viz.*, for ponies not exceeding 14·2 hands high to be ridden by children not over 15 years of age. Fifteen entries resulted. This year five classes are offered with prize money amounting to £50, and usually some 110 children compete in the different classes.

The largest show that Mr. Badge ever organised as Secretary was in 1924, when he had to make arrangements for the stabling of 264 breeding and riding ponies in addition to 54 competition and children's ponies. The annual shows were maintained during the War, for though the Royal Agricultural Hall was taken over by the Government, joint Hunter and Pony shows were held in the Park Paddocks at Newmarket.

Mr. Badge who has edited ten volumes of the National Pony Stud Book, and has at various times run several shows and sales in the summer, has also been Secretary of the Hunters' Improvement Society since 1929.

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NUTRITION AND NATIONAL HEALTH

Three Cantor lectures on "Nutrition and National Health" were delivered before the Royal Society of Arts on successive Mondays in February by Major-General Sir Robert McCarrison, I.M.S. (ret.), and have been combined and

published in pamphlet form by the Society, from whom, at John Street, Adelphi, W.C.2., they may be obtained, price 2s. 6d.

This eminent authority, with his unique and great experience of nutritional problems in India, is now being listened to with much respect by public health workers and authorities at home. What he has to say about the paramount value of milk in the dietary indirectly concerns us. In particular, what he says (and has often said before) about his results in feeding rats upon the dietaries upon which the different sections of the population in India subsist will be read with interest by our readers. Largely following McCarrison's lead as a pioneer in nutritional investigation in India, we understood that the authorities in that country have commenced to extend considerably research into the pressing problem of livestock nutrition and that the control of that research will be in the hands of the veterinary departments—a very sensible and natural procedure.

Processes Concerned in Nutrition

Sir Robert McCarrison began by describing the processes concerned in the function of nutrition, and the pathological changes brought about in the organs and tissues of the body by faulty food. Apart from oxygen and water, the substances at present known to be indispensable to the performance of the body's functions were 36 in number. Of these 18 were amino-acids, derived from the proteins of the food. Eleven were inorganic elements: sodium, potassium, calcium, magnesium, phosphorus, iron, sulphur, copper, manganese, chlorine, and iodine. One was glucose, derived chiefly from carbohydrates; another was linoleic acid, derived from fats, and the remaining five were vitamins. No single foodstuff contained all these essentials. A properly constituted diet was such a combination of foodstuffs as provided them all in proper quantity and proportion. In addition to proteins, carbohydrates, fats, mineral salts, and vitamins, there were in food blood-forming substances, extractives, flavouring matter, and pigments that had parts of greater or lesser importance to play. The food must also contain a certain amount of innocuous indigestible material, or "roughage," to stimulate intestinal movements. Besides all this, there was something in the freshness of food, especially vegetable food, which gave it a health-promoting influence. It was impossible for any synthetic food to equal fresh foodstuffs, as Nature provided them, in health-sustaining qualities.

The lecturer drew upon his great experience of dietary habits and physique in India to sustain his thesis that the greatest single factor in the acquisition and maintenance of good health is perfectly constituted food. No other factor, neither race, nor climate, nor endemic disease, had so profound an influence as food in determining the level of physical efficiency among the Indian races. In general the races of Northern India were wheat-eaters, the wheat being eaten whole in the form of cakes called "chapattis," preserving the proteins, vitamins, and mineral salts of the cereal. The next most important ingredients in their diet were milk and its products, pulse (dhal), and vegetables and fruit. Meat was eaten sparingly if at all, though the Pathans consumed it in considerable quantity. These chapatti-fed races of Northern India were, so far as physique was concerned, among the finest races of mankind. On the other hand, the rice-eaters of the south and east of India, whose staple article of diet was a relatively poor cereal at best, and subjected to processes which reduced its already sparse supply of essential nutriments, were, in general, of poor physique.

The lecturer related how he had given to a group of laboratory rats a diet as prepared and cooked by the Sikhs; to another group the diet of the Pathans; to a third that of the Mahrattas, and so through other races to the Madrassis, and the results conformed to those of observations made on man himself. The best diet, that of the Sikhs, contained in abundance every element and complex needed for normal nutrition; the worst, that of the Madrassis, was excessively rich in carbohydrates and deficient in suitable protein, mineral salts, and vitamins. So impressed was he by the adequacy of the diet of the Northern Indians that during the later years of his experimental work he used it as the stock diet for his rats, and in the stock so fed there was an absence of illness and of maternal and infantile mortality.

The lecturer described comparative studies of rats to demonstrate the freedom of well-fed animals from disease and the proneness to disease of animals fed on such a diet as was commonly used by the poorer classes in England —namely, white bread, margarine, and over-sweetened tea with a little milk, boiled cabbage, boiled potato, tinned meat, with jams of the cheaper sort. Rats fed on this diet showed stunted growth and other signs of poor condition. They were susceptible to two chief classes of ailments—namely, pulmonary and gastro-intestinal—while a more perfectly constituted diet, such as was commonly used by Northern Indian races, afforded a considerable measure of protection against such conditions.

Peptic ulcer was very common in the south of India, rare in the north. An experiment, continued for seven hundred days, on groups of rats fed respectively on diet as used by the Sikhs, diet as used by the poorer classes of Madras, and diet, largely tapioca, by the poorer classes in Travancore, showed on *post-mortem* examination of the animals that the first group had no peptic ulcer, the second group had it to the extent of eleven per cent., and the third group to 29 per cent. Rats fed on the perfectly constituted diet of the Sikhs remained in good health and did not develop, for instance, stone in the urinary tract, but if milk and milk products were removed, and fresh vegetable foods cut down to a minimum, many did develop it as well as a wide variety of other ailments. No doubt other factors were concerned in the causation of "stone," but a perfectly constituted diet, rich in milk and fresh vegetable foods, afforded a high degree of protection. He enumerated the maladies he had encountered in improperly fed animals, the clinical evidences of structural and functional changes in organs or parts of the body that resulted, directly or indirectly, from faulty nutrition.

In his second lecture Sir Robert McCarrison dealt with the essentials needed for the efficient construction and maintenance of the fabric of the body and the regulation of its processes.

The chief rôle of the proteins was to provide materials for growth and repair. The daily requirements of the body for proteins were approximately one gramme per kilogramme of normal body weight; more than this was undesirable excess. Much more use might be made of better class vegetable proteins, such as those of the soya bean, legumes, and nuts, and much less use of the flesh of animals. The more the mineral constituents were studied the more important their rôle in nutrition was found to be. Four of them—namely, calcium, phos-

phorus, iron and iodine—were of outstanding importance.

The lecturer then traversed the familiar ground of the vitamins. Each of the five classes, he said, had its own part to play in nutrition—a part that could not be taken by any other. Each had its specific relations to certain structures of the body: vitamin A to epithelium and nerve; vitamin B to the gastro-intestinal tract, nervous system, and skin; vitamin C to the cement substance that bound the cells of the body together; vitamin D to the bones and teeth, and vitamin E to the reproductive system. But their relations were not confined to these. Thus one supported another, and all were closely intertwined in their action with other essential constituents of the food.

Diet and Physical Efficiency

In his concluding lecture Sir Robert McCarrison had many useful things to say on the paramount importance of food in the prevention of disease. He began by showing a diagram prepared from the material provided by the annual report of the Chief Medical Officer of the Ministry of Health for 1933, wherein it was shown that diseases of the respiratory and of the digestive system accounted for more than one-third of all illness in the insured population of England and Wales. A similar diagram prepared from the report for the same year of the Surgeon-General of the Madras Administration, after making certain adjustments for purely tropical ailments, showed that these two systems of the body again accounted for approximately one-third of all sickness among persons of the hospital class. If these two classes of disease were, as they had proved to be, a chief consequence of feeding rats on a diet in common use by the poorer classes in the United Kingdom and also in common use by the poorer class Madrassi, then these diets *per se* were likely to be favourable to the production of such maladies in human beings.

The relative incidence of certain diseases in Madras and in the Punjab was illuminating, bearing in mind that the diet of the poorer classes in this country afforded as little protection against disease as that of the Madrassis, and that the diet of the people of the Punjab was, in general, of better constitution than either. Tuberculosis was nearly twice as common in Madras as in the Punjab; leprosy was also much more common. Diseases of a chronic and degenerative kind were found more frequently in the south than in the north of India. Peptic ulcer was nearly sixty times more common, rheumatism nearly five times as common, cancer three and a half times as common, anaemia and malnutritional diseases generally (excluding beriberi, which rarely occurred in the Punjab) more than twice as common, rickets four times as common. These and other like differences in the incidence of disease as between the two parts of India could be accounted for in large part by the difference in the nutritive quality of the diet of the peoples.

Returning to the seriousness of partial degrees of vitamin insufficiency, on which he had dwelt in his second lecture, the lecturer stressed the consequence of inadequate ingestion of vitamin B_1, which appeared to him to be a conspicuous fault of the diet of the British people. The fault was due to the extensive use of vitamin-poor wheat flour and the inordinate use of vitaminless sugar. The excessive richness of the average diet in these two carbohydrates gave rise to insufficiency of vitamin B_1, for two reasons: first, because the food as a whole did not contain enough of it, and, secondly, because relative to the richness of the diet in carbohydrates this vitamin was rendered still more deficient, for it was now known that the greater the consumption of carbohydrates the greater the need for vitamin B_1. He quoted from Dr. G. E. Friend, medical officer, Christ's Hospital, Horsham, that the "deficiency of white bread in vitamin B is one of the most serious dietary deficiencies to which our populations are being subjected at the present time," and to this the lecturer added that the inordinate use of refined sugar was one of the most serious addictions of the day. In America it had been recognised that the "bread-meat-potato-sugar" diet—and the average diet in this country was of the same order—was dangerously low in this important factor unless it was supplemented with a sufficiency of milk, eggs, fruits, nuts, and vegetables. Many experiments had been made during the last few years among American children which showed the good effect of the supplementary provision of vitamin B_1, and observers both in this country and in the Near East had come to the conclusion that a large proportion of infantile mortality associated with gastro-intestinal disturbance might be due to a deficiency of this fraction consequent on the relative poverty of the mother's milk and of cow's milk in this vitamin.

Towards the conclusion of his lecture Sir Robert McCarrison cited evidence from various sources of physical inefficiency in this country and stressed certain general considerations. The main burden of ensuring that each member of the community should receive a diet which satisfied his physiological needs must rest on the Government, but there was much that individuals could do, and that the medical and allied professions and the teaching profession could do, in acquainting themselves with the principles of nutrition, practising them, and inculcating them. Was it beyond the organising capacity of the nation to obtain an adequate production and distribution of fresh vegetable foods, dairy produce, and eggs? As for milk, he did not share to the same extent the objections put forward in some quarters to sterilisation. It was true that the treatment did deprive the milk of some nutritive quality, but of little that could not be made good by the adequate use of fresh vegetable foods, and even in its sterilised state it remained the best and cheapest of foodstuffs. But the provision of fresh vegetables was as much a national necessity as the provision of milk. He rather dissented from the inclusion in a recent authoritative report of meat as among the "protective" foods. It was probably so included because it was a rich source of good protein and of vitamin B_2; but it was poor in certain other essentials, and by naming it "protective" the impression was created that health depended upon its inclusion in the diet, which it did not. Far better to encourage the use of inexpensive but none the less nutritious foods (milk, cheese, herrings, whole-meal bread, vegetables), from which satisfying and well-balanced meals could be made at a relatively low cost.

The medical and teaching professions were in a position greatly to aid the endeavours of the Government in "the building of an A1 nation." Nutrition was an integral part of preventive medicine, and as such should be given a place in the medical curriculum commensurate with its importance. Only when the medical profession was itself fully instructed could it play its part in the instruction of the public.

H.M. STATIONERY OFFICE PUBLICATIONS

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The second international congress of the Scientific and Social Campaign against Cancer will be held in Brussels from September 20th to 26th. The congress is under the patronage of the King of the Belgians and of Queen Elizabeth, and has the support of the Government.

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Plans for a joint show, to be held at Worthing from June 15 to June 18, are being prepared by the Royal Counties Agricultural Society, the Sussex County Agricultural Society, and the Hackney Horse Society. The show is expected to be one of the largest ever held in the South of England.

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The Directors of the International Sheep-dog Society, from the credit balance of the Society for last year, have made grants of ten guineas each to the Animal Diseases Research Association, Midlothian, the Veterinary Department of the University at Bangor, North Wales, and the Alan Duke of Northumberland Memorial Fund, Armstrong College, Newcastle-on-Tyne.

Correspondence

Letters to the Editor should reach the Office not later than by the first post on Tuesday morning for insertion in following Saturday's issue.

All correspondence must bear the name and address of the contributor for publication.

The Editor does not hold himself responsible for the opinions of his correspondents.

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PROFESSIONAL TRAINING IN THE HUSBANDRY AND DISEASES OF FUR-BEARING ANIMALS AND BIRDS

To the Editor of The Veterinary Record

Sir,—In 1934, Council N.V.M.A. set up a committee "to explore means of bringing about the collaboration of the veterinary profession and members of the rabbit, fur-bearing animals, pigeons and aviary birds industries." This committee collected evidence from professional and lay experts. Upon the evidence of its committee Council N.V.M.A. made various recommendations for opening up this vast new field to veterinary practice, *viz.*: (1) adequate teaching facilities; (2) post-graduate courses; (3) research; (4) publication of literature; and (5) encouragement of co-operation between the profession and the industries.

In *The Veterinary Record*, 1936, **16**, 155, it is reported that the Examination Committee of the R.C.V.S. had received the N.V.M.A.'s report and "recommendations regarding instruction and examination in the husbandry and diseases of fur-bearing animals and birds," but the R.C.V.S. decided that "the present syllabus of instruction and examinations for the Diploma of the College make adequate provision for the purpose."

The latter is an extraordinary statement in view of two facts. With the possible exception of two bacteriologists with some knowledge of poultry diseases, there is no teacher on the staffs of our veterinary schools equipped with the practical experience of the subject which would make them competent to teach our students. Likewise, the panel of Examiners, R.C.V.S., contains no men with practical experience of the subject.

The fog is deepened by a further statement by Professor Buxton that "this matter was considered very fully indeed by a body of men, who were well constituted with a view to forming an opinion." Presumably Professor Buxton regards the men of the Examination Committee as well constituted to form an opinion on this matter, *viz.*, the N.V.M.A. Council's report and recommendations on the fur-animals and birds industries. Our only difficulty in accepting Professor Buxton's opinion is the knowledge that neither Professor Buxton nor any of his colleagues of the Examination Committee have any practical experience of the bird and fur-bearing animal industries.

The Council N.V.M.A. is endeavouring to win a large new field of work for our present and future graduates; at the moment its effort is likely to be stifled by the veterinary schools, R.C.V.S. Examiners, and the Examination Committee, who, on Professor Buxton's assurance, we should hail as a trinity of erudition. To succeed the N.V.M.A.'s effort needs men not measures; men of action not generators of fog and futility; and it might be useful if these men knew something of the job to be done.

I have the honour to be, Sir,
Your obedient servant,
Tom Hare.

The Veterinary Research Laboratories,
288, Finchley Road,
London, N.W.3.

March 16th, 1936.

The Editor acknowledges, with thanks, the receipt of the following:—

Communications from Mr. Ll. E. W. Bevan (Southern Rhodesia), Dr. G. B. Brook (*from* Hannover, Germany), Mr. Max Henry (New South Wales), Professor Wm. C. Miller (London) and Professor Geo. H. Wooldridge (London).

Reports of meetings of the Derbyshire and the North of England Divisions, N.V.M.A., and the Society of Veterinary Practitioners, from Messrs. W. J. Ironside, J. R. Rider and H. W. Steele Bodger, respective Hon. Secretaries.

Corrigendum.—On page 320, col. 1, para. 3 (report of Central Veterinary Society discussion of Professor Miller's paper), Mr. N. J. Scorgie's observations should read: ". . . As many of them knew, breeders of Jersey cattle bought a considerable number of in-calf heifers from the islands. These, after their first calving, showed a period of temporary anoestrum; in two herds, etc." . . . "About three months ago they started feeding blood fibrinogen to animals which failed to come into oestrum after calving, etc."